

HELP YOURSELF TO BETTER SIGHT

MARGARET DARST CORBETT





76.95

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Vision can be improved! If you really want to see better and are willing to make a conscientious effort, this new book by the most outstanding teacher of eye education will enable you to teach yourself to see. If you are one of the millions of people who suffer from poor eyesight and have never found satisfactory relief, here you will find the secret of better vision, increased nerve power and a brighter outlook on life. And you will no longer have to depend on glasses!

Relaxation is the secret of the art of seeing. It is the basis of the Bates Method, a highly successful system of eye training which has helped countless men, women and children to better eyesight. This book tells you how to apply the principles of the Bates Method to your own visual defects. It explains the psychology and technique of relaxation through coordination of the eye and mind.

Efficient seeing is a skill that must be developed just like any other skill. Here are simple, step-by-step mental drills which will develop that skill. Weak eye muscles will be strengthened and

nervous tension, which is the basis of all eye trouble, released, if you practice these drills every day until vision becomes normal. There are special drills for all types of visual defects—near-sightedness, farsightedness, dim vision, aging vision, color blindness, off-focus eyes, crossed eyes, tired and strained eyes, work-worn and nerve-torn eyes. The chapter on eye training for babies and small children will be of particular interest to all parents.

Here is a wealth of practical advice and help for you if you really want to improve your vision.

The Author

Margaret Darst Corbett has done perhaps more than any other living person to help defective eyes to normal vision. A pupil of Dr. Wm. H. Bates, she has carried out his teachings in her own Los Angeles School of Eye Education. Her trained instructors have gone to all parts of the world and established classes for normalizing defective vision. Aldous Huxley, John Dos Passos and Harold Heffernan are among the famous people she has helped. Those who have benefitted by her system of eye training are most enthusiastic in their praise for her and the Bates Method.

Books by Margaret Darst Corbett

**How to Improve Your Eyes
Help Yourself to Better Sight**

Help Yourself to Better Sight

by

Margaret Darst Corbett



Melvin Powers
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DEDICATION

This book is gratefully dedicated to the many teachers I have trained who have contributed so materially in developing the advanced techniques of the Bates Method of Eye Education. These contributions are reflected in the following pages.

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Introduction

Dr. William H. Bates, who developed a new method for rebuilding vision in defective eyes based on the principle of relaxation, won widespread recognition—through the acid test of results. The Bates system has worked true miracles in helping those with imperfect vision.

The world at large cannot help admiring, and the scientific world should do homage to, a man who renounced a highly remunerative ophthalmological and surgical practice in order to develop a better method for the aid of suffering humanity. His sacrifice of both money and prestige was great. Truth, as he saw it, unsolved problems and mistakes in orthodox practice, drove him forward with devotion into this great new discovery for the normalization of defective vision, to bring hope to the terrified and despondent.

Dr. Bates held degrees from Cornell University and from the College of Physicians and Surgeons in New York City. He was, at different times, physician in the Manhattan Eye and Ear Hospital, Bellevue Hospital, New York Eye Infirmary, Northwestern Dispensary and Harlem Hospital. He stood so high in the ophthalmological world that he instructed doctors in ophthalmology in the New York Post-Graduate Medical School and Hospital. He has, on record, five years of research at Colum-

bia University, and he did forty years in all of research work before presenting his findings to the American Medical Association.

Early in his ophthalmological career, Dr. Bates felt the need of improvement on the accepted practice of prescribing glasses for refractive error. In a little country town in Montana, he put glasses on the myopic child of a friend. "Wear them only when you must, Marguerite," he admonished. "Give your eyes their freedom as often as you can. Stretch your vision. Look down the side of the road at each of the haystacks. Count as many as you can see every day." Then, shaking his head sadly, he prophesied, "Glasses are not right; they are but a crutch. Some day we will find a better way."

Although thoroughly schooled in orthodox ophthalmology and accepted as an authority by his colleagues, at different times, Dr. Bates pleaded with the doctors to investigate his findings before condemning them. He told them that if his principles were correct, the doctors should use them universally, but if not, they should expose him and protect the public. Dr. Bates declared it a breach of medical ethics for scientific men to withhold such simple effective methods from those who suffer with their eyes.

His wish was not granted in his lifetime. He did, however, live long enough to train many followers who have striven to perfect his technique of normalizing defective vision by relaxation.

This natural method of vision-building now stands on its own merits. It is taught in the Margaret D. Corbett School of Eye Education in Los Angeles and in branch

schools in the Northwest by teachers trained to a high degree of efficiency. Every teacher of this growing organization cooperates, through research, to help improve the technique of applying Dr. Bates's principles. The findings of this research are pooled at regular meetings and conventions to speed and make more efficient the refinements of this method. These findings are reflected in the following pages. Those who have read my first book, *How to Improve Your Eyes* (1938), will recognize a vast development in our techniques since then.

Now that the Bates method has become international in scope, the plea for branch schools comes from many states and distant countries, notably Mexico, South America, India, Jugoslavia and Russia. Already, we have teachers in Canada, Buenos Aires, New Zealand, England and Hawaii. The Los Angeles school sends out instructors far and wide in an attempt to meet the ever-increasing demand for eye education. It is affiliated with The Ferris School of Eye Sight Training in London, where the Bates system is used.

Many articles concerning the Bates method have appeared in newspapers and magazines, and the Los Angeles School of Eye Education is discussed in the latest edition of the *Encyclopedia of American Biography*. Since the publication of Dr. Bates's book, *Better Eyesight Without Glasses**, in 1918, many books have been written on the subject, the most notable being *The Art of Seeing*†, by the illustrious English author, Aldous

* Published by Henry Holt & Co., Inc.

† Published, 1942, Harper & Brothers.

Huxley. This gives a most comprehensive and workable description of the possibilities for individual improvement through the Bates method and the means by which it may be attained. Mr. Huxley writes, "The eyes provide us with the visual sense impressions, which are the raw materials of sight. The mind takes these raw materials and works them up into the finished product—normal vision of external objects."

During the second world war large numbers of servicemen profited by the Bates system. After the war, the Los Angeles School of Eye Education was approved by the Veterans Administration for rehabilitation work with returning veterans. As an integral part of the program of aid for returning servicemen, the entire organization has focused its research on the development of vision in persons possessing only light perception.

MARGARET DARST CORBETT

CHAPTER I

Principles of the Bates Method

"Clear seeing is the product of accurate sensing and correct perceiving. Any improvement in the power of perceiving tends to be accompanied by an improvement in the power of sensing and of that product of sensing and perceiving which is seeing." *

—ALDOUS HUXLEY

VISION can be improved; the secret is relaxation of the mind and eye. This simple truth is the basis of the system through which Dr. William H. Bates and those who have taught his methods have been so successful in helping men, women and children to better sight.

The need for better natural vision has been strongly felt during recent years. The second world war made vital demands on the eyes of the men in the service as well as on the civilian population with its stepped-up program in defense work. Further, the tendency in our educational system toward visual education requires good eyesight for students.

Efficient seeing in our modern, super-civilized world is a skill and must be developed just like any other skill. Dr. Bates demonstrated that this skill can be developed and as a result miracles have been worked in rebuilding

* From *The Art of Seeing* (Harper & Brothers).

vision. In the world-wide group of persons who have been helped through the Bates method are included members of all occupational groups, school children, men in the armed forces and war veterans.

CHALLENGE TO POPULAR THEORIES

The Bates system has successfully challenged old accepted beliefs of ophthalmology. For years man held the notion that vision could not be improved. One possessed either strong eyes or weak eyes, good vision or poor vision. One had to go through life just that way unless glasses could aid. Another popular theory was that all eyes, good and bad, lose their power with age despite the fact that many persons of extreme age carry good vision to their graves or have vision restored (second sight) when they cease struggling with life and sit back to watch the world go by. At 40, we have been told, *all* eyes need reading glasses. Most eyes need bifocals or, worse yet, trifocals. This, it is said, is due to the inevitable hardening of the lens with advancing age, which makes vision at the near point difficult without glasses as we grow older.

Now we know the fallacies that underlie these beliefs. Dr. Bates proved that the eye is easily trained. Further, he established the principle that unstrained, well-sunned eyes are not affected by age. He proved that not only can the eye be trained but that vision (the coordination of eye and mind) can be improved by education. A good example of the practical application of this theory is the success of the program through which the Air Corps

gave scientific visual training to its pilots in quick and accurate recognition of all types of flying craft.

The reason why eye and mind can readily be taught more accurate coordination is that the optic nerve is an extension of the brain; hence, is as much a part of the brain as of the eye. The extension of this optic nerve, opening within the eye as an inner lining, is called the retina. It acts as a sensitive plate like the film in a camera and takes the picture for the brain to develop.

Dr. Bates also established the fact that good or bad eyesight, nearsightedness or farsightedness, is not the result of the shape of the lens in the eye. He removed the lens of a patient's eye (the cataract operation) and still was able to teach the eye to see both near and far, just as lenseless pinhole cameras can take pictures. This was possible, he discovered, because the eye acts on the principle of all optical projection instruments—field glasses, telescopes, cameras—the entire eyeball lengthening in axis to read a book and shortening itself from front to back to see the distant object. This is called eye-accommodation. (When eye-accommodation is good and the eye is looking directly at an object, the eye is said to be in focus.) Dr. Bates further established that we have no control over these changes in the shape of the eyeball to accommodate for vision at the near or far point, since they are brought about by the involuntary muscles.

The involuntary muscles do as they please, and when they please. They behave normally if they are relaxed, abnormally if they are tense. Because each involuntary muscle is actually an extension of one of the long muscles

attached to the outside of the eyeball, we shall refer to the entire group as extrinsic involuntary muscles.

The major portion of each of the extrinsic muscles, however, is voluntary—that is, we can control it. These voluntary muscles are the ones we use when we roll the eyes from side to side or turn them up or down. This exercising or rolling of the eyes does not cause accommodation—only relaxation will do that.

Therefore attempts to aid eye-accommodation by exercise, that is, working the voluntary muscles, have been ineffective. The reason is this: exercise is a voluntary activity. But exercise has no direct effect on the muscles we really want to reach, the involuntary ones that control the adjustment of the eye to vision at different distances.

Hence exercises do not come within the teachings of the Bates method. Exercises which bring conscious control over the eye may actually accentuate faulty vision. The purpose of the Bates method is to teach activity under relaxed conditions by which the eye and mind co-ordinate normally, thus returning the function of seeing to the involuntary system, and permitting vision to take place.

TWO KINDS OF RELAXATION

Relaxation, which is the secret of normal vision, should therefore be the basis of eye training. There are two types of relaxation:

1. The sort you indulge when you are at rest, not attempting to use your eyes.

2. The sort you must maintain habitually at your work while it is necessary for you to see rapidly and accurately.

After this habit of relaxed visual activity becomes automatic with you, the eyes will grow keener and stronger with use; just as any other portion of the body, if used correctly, will improve in health and power. For example, relaxation is emphasized in the treatment of the hard of hearing.

No athlete is good until he relaxes. Slow motion pictures of a good boxer or runner show that even though his working muscles may tighten for an instant to provide power, he is boxing or running while relaxed. This is largely the reason for the custom that athletes warm up, by slight exercise, before engaging in contests.

The normal relaxed function of the eye is seriously hampered by the tensions of our super-civilization. People who ease their way through life do not have eye strain. What we should teach in the earliest grades is the power to attain knowledge, to maintain interest, to accomplish tasks in mental application without tension. In reality, knowledge is acquired and creative mental work accomplished only when the mind is relaxed or at ease. Writers have told me that their best plots and most vivid scenes come to them when they are completely relaxed and at rest rather than when cudgeling their brains for material.

Dr. Bates proved that well-sunned, unstrained eyes are not affected by age because they maintain their relaxation during activity, which is the secret of all skills. The remarkable vision of primitive natives of great age

is convincingly demonstrated by this story. One of my pupils who had developed super-distant vision studied a tribe of Indians on the desert. While strolling with an aged brave, he looked through his high-powered binoculars and located a deer on the horizon. He pointed the location to his venerable companion and asked what it was. The old Indian tipped back his head and, training his desert eyes on the distance, replied, "Umph, deer heading south." Thinking the Indian was perhaps farsighted and could not see well at the close point—the so-called "old age sight" of civilization—my pupil picked up a pinch of desert sand, spread it on his palm and questioned the old man, who examined it and gave an accurate description of its content.

Dr. Bates's work was with vision—not eyes. When vision becomes better, eye defects tend to disappear. Strain, effort and decentralization, which is the use of the wrong portion of the retina, or failure to use the center of sight, cause defective vision, technically known as refractive error. If we eliminate strain, the refractive error takes care of itself. The orthodox hold the opposite contention that refractive error makes the strain. They treat the refractive error, allowing the strain to continue unattended.

Though Dr. Bates was a physician and surgeon, the method he developed is essentially educational, not medical. We who teach it do not concern ourselves with problems of physiology or disease. It is not necessary for us to do so, for experience proves that when people with imperfect eyesight acquire the art of seeing, the organs of vision will tend to rid themselves of their physical de-

fects. Relaxed organs enjoy better circulation than organs wrongly used and under strain. Improved circulation gives an organ a chance to build up its resistance, free itself of disease and correct its defects.

Now you may wonder what you, yourself, can do for your troublesome eyes that are constantly giving you imperfect vision. Study the drills in this book thoroughly. Select the ones that seem to apply most directly to your particular problem. Realize that tension is the basic cause of all refractive error and more serious complications and resolve to get rid of your tension. Do these drills conscientiously each day as regularly as you eat your meals. You will be astonished at the results, not only in vision but in increased nerve power and greater endurance with which to meet the demands of your life. This ease of body and mind will show itself in a more optimistic outlook and a more radiant expression.

Students who improve their vision only to a degree must continue their drills in relaxation to maintain their gain. Those who complete this normalization find that their improvement is permanent and that their eyes need no further attention since they have established good subconscious habits of normal sight—and habit is lasting.

CHAPTER II

Structure and Function of the Eye

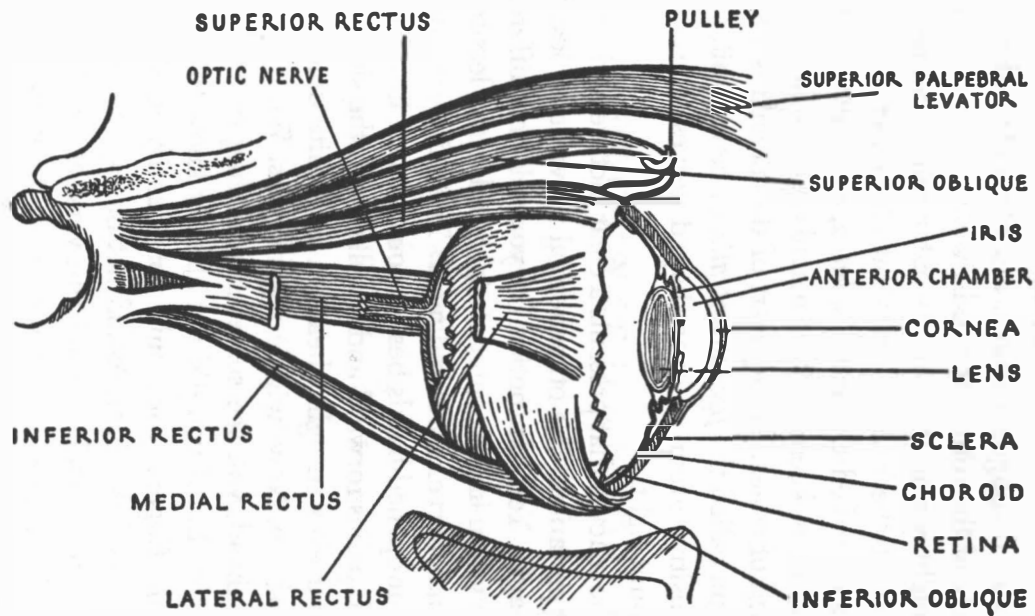
"Nature is not stingy. She has not given the human race a meager inheritance. She did not blunder when she made the human body, nor did she allow the spirit of man to develop a civilization to whose demand his body is not equal. . . . Her motto seems everywhere to be, 'Provide for the emergency, enough and to spare.' " *

—J. A. JACKSON, M.D.

THE eye is one of the most intricate and fascinating of our organs because it is so intimately and directly connected with the brain. Embryologists state that one of the earliest developments of foetal life is the protrusion of the optic nerve from the brain. As the eye develops in the embryo, it remains connected with the brain by the optic nerve which expands within the eye into a delicate membranous innermost lining, the retina. This retina, located at the back of the eye, is the sensitive plate upon which, in the normal eye, the image falls, awaiting interpretation by the brain, in the same way that the picture is registered on the film of a camera until the owner develops it.

In the normal eye the retina consists of ten layers. The ninth or next to the innermost and most important con-

* From *Outwitting Our Nerves*, copyright, 1921, 1932, The Century Co



CROSS SECTION OF THE EYE

tains the cone- and rod-shaped nerve ends which are essential to the function of seeing. The cones, which are believed to distinguish colors, are concentrated toward the center of the retina; the rods, which are presumed to aid in night vision, toward its outer edges. Situated in this layer of the retina, just a bit off-center is a small yellow spot called the *macula lutea*, or center of sight. Here vision is keenest. The macula is almost entirely composed of cones. In the heart of the macula is a small depression called the *fovea centralis*, or central pit, a still more sensitive group of cone-shaped nerves whose duty it is to hunt light.

It is the macula that presents a clear picture to the mind for interpretation. The other retinal nerves take less distinct images. You can notice for yourself the difference between vision in the center of sight and in the less sensitive retinal nerves surrounding it. Try this experiment: Hold your opened hands beside your ears six inches from the head, palms forward and parallel with the shoulders. Keep your eyes straight ahead on a definite object such as a doorknob. Now, wiggle your fingers. With the eyes straight ahead, you see something moving on each side of your face but if you did not already know that it was hands and fingers, you could not identify it, since the peripheral or side vision would not be capable of telling you. The nerve ends around the very outer circumference of the retina cannot give definite vision. If you move your hands five inches forward, the wiggling fingers can now be seen, even with the gaze still held on the doorknob. You can recognize hands and fingers. Move

the hands another five inches forward. In this position, you can count fingers and recognize jewelry because the hands are approaching the center of sight. However, if your vision is fairly normal, you still see the doorknob more definitely and more vividly than the fingers you can count on each side of your face. This proves the importance of the eyes keeping in true focus so that the center of sight of each eye may be on the same object at the same time. If the eyes slip off focus and the outer retinal nerves take over, the image is blurred and indistinct.

FUNCTION OF THE RETINA

While we know a good deal about the retina, there is still much that we have to learn. Like protoplasm itself, the dead retina changes almost before scientists can analyze it and the dead retina, of course, offers nothing in the research of its functioning: how it carries the pictured image to the brain, how the image is interpreted or becomes conscious vision in the brain by means of memories of former images. The physical eye is but the camera which aids vision; vision is fundamentally a mental process.

For example, as in a camera, the image falls on the retina upside down, yet the brain sees the picture right side up. That this is strictly a mental process is shown by the psychologists' experiment when, with lenses, the image was thrown on the retina right side up. This should have caused the person to see it upside down. The brain, however, soon learned to interpret it correctly.

As mentioned above, the retina corresponds to the film in your camera. Like the film it is coated with a chemical which helps it to capture this shadow picture. In the eye this chemical is called visual purple or rhodopsin. When the film in a camera is exposed to a shadow image the chemical wash with which it has been sensitized is immediately used up. In the normal eye, however, when a shadow image falls on the retina, the chemical (visual purple) is replaced immediately, so that the retina is ready to receive the next visual image. Scientists estimate that on the normal retina the visual purple is exposed and restored with great speed, enabling the eye to receive a continuous succession of visual images. However, they do not agree on the purpose of the visual purple or its function in active seeing, as there is no visual purple in the most important part of the retina, the center of sight or macula.

Strangely enough, there are no blood vessels in the macula either. Again, although the rods and cones are intermixed throughout most of the retina, there are few rods in the macula and none in the macula's keenest seeing portion, the fovea.

The rods of the retina increase in number toward the outer portion of its circumference and take care of the peripheral vision, enabling us to have visual awareness on either side and not be startled by something passing. The rods also do our night seeing, taking over when the cones of the macula and the fovea, the light finders, are insensitive.

The study of this area of greatest visual acuity, the

fovea, is carried on by observing it through the pupil of the living eye with an ophthalmoscope. Dr. Bates, in his method of simultaneous retinoscopy, learned the most about its functioning. He was able to study the retina from a distance of six feet or farther while his subject carried on the usual visual activities. He discovered that this most sensitive group of nerve ends, the fovea, when in action, could furnish the keen vision upon which the eye depends, only if the eye was in a state of relaxed activity; that while this state of "dynamic relaxation" was maintained, the fovea could perform its function of rapidly searching out every gleam of light around and in the object observed. Then, and then only, keen vision resulted.

Conversely, if the mind is tense, the voluntary muscles of the eye tighten. This pulls the eye off focus, deflecting the light rays from the keen point of the macula to the less sensitive peripheral nerves. The macula registers sharp specific images. The peripheral nerves register blurred general images only, on which the mind strains in its attempt to interpret what is not definite, thus completing the vicious circle. The person sees but with effort, mental and visual, and with no clarity. If the macula is in position and the fovea functioning, there is no strain in the eye or the mind and the vision is perfect.

Plainly, then, the retina is the most precious part of the eye and needs the most careful consideration and the greatest protection. Nature plays ever safe in the formation of our bodies and takes no chances with a single protective covering but generously furnishes multiple

layers or coatings. She has carefully encased the retina in two outer protective coatings and has filled the hollow of the eye with protective fluids.

The sclerotic outer covering, the opaque coat of armor or white of the eye, has in itself numerous layers so that if one is scratched, bruised or burned, the eye is still protected. This covering reaches completely around the globe of the eye, pierced at the back where the optic nerve enters and changing in the front to a transparent window like a watch crystal, called the cornea. This cornea window, being the most exposed portion of the eye, has in itself five layers, one tough horny sheath as an added protection against puncture or injury.

Beneath the sclera, the outer coating, is a second tunic, the choroid lining, dark in color and nontransparent in order to furnish the dark chamber for the camera eye. This choroid has also multiple layers in which lie the blood vessels that provide the nutritive fluids for the nourishment of the retina. It holds, as well, the veins which carry away the used blood and waste matters. This choroid also has one harder layer, a layer like a thin-shelled fingernail for the further protection of the delicate tissues of the precious retina that lie just within it and attached to it for their nourishment.

The choroid when it reaches two-thirds toward the front of the eye becomes the ciliary*, in front of which is the iris or colored portion of the eye which makes its beauty but, more important, aids in regulating the amount

* There is much dispute among scientists as to the function of the ciliary body, there being three conflicting theories.

of light the eye requires for taking its pictures. The iris, the ciliary body and the choroid coating are all of the same tunic. The iris has been likened to the diaphragm in a camera since it opens wider for a picture in poor light but closes to a small point for a picture in brilliant light. The round opening of the iris is called the pupil.

EYE COMPARED TO CAMERA

Back of the iris, in a little capsule of fluid, floats the crystalline lens. This lens is much like that in a camera except that, in a camera, the lens is a solid piece of glass, whereas in the normal adult eye, the lens is a series of layers of transparent tissue, through which the light admitted by the pupil may be directed to the retina at the back of the eye.

A clear watery fluid fills the spaces under the cornea, in front of and behind the iris and around the crystalline lens. This fluid is called the aqueous and aids in holding these parts in shape and position. The greater hollow inside the eye, between the lens at the front and the retina at the rear, is filled with a heavier fluid more like the white of an egg. This thickish fluid, called the vitreous, maintains the spherical contour of two-thirds of the eye, keeping it inflated as air inflates a balloon. The vitreous is a further protection to the retina.

So we find the precious retina (the extension of the optic nerve) protectively placed as an innermost lining, deep inside the eyeball. The cornea, the lens and two sorts of fluid protect it from the front; two strong tunics or coatings completely envelop it. With such protection

for the nerves of sight, we have the right to hope for vision as long as we live.

The mechanical work of the eye is done by the six important muscles attached to the outside of the eyeball. These are fastened to the white of the eye or sclera.

Four of these muscles reach from front to back, starting near the cornea and extending to the bony structure at the rear of the eyeball. There is one above, one below and one on each side of the eyeball. These are called the recti.

The other two muscles, the obliques, circle the eye obliquely, one attaching itself to the sclera underneath, the other to the upper side of the eyeball.

All six of these muscles are long, and striated or striped except where they attach to the sclera. At these important junctures they are smooth. The striped portion of any muscle is voluntary and can be commanded. The smooth portions are involuntary which means that they operate without conscious direction.

It is with the long striped portion of these outside or extrinsic muscles that we roll our eyes or turn them up, down or from side to side.

The smooth portions of the muscles involuntarily lengthen or flatten the eyeball to accommodate for near or far vision. These two groups of smooth muscles will do their work perfectly, lengthening and flattening the eye, in full cooperation if tension does not interfere; that is, if they remain relaxed, just as any opposing group of muscles in the rest of our bodies permit us to move by cooperating.

Chemical protection for the outside of the eyeball is furnished by the lubricating and disinfecting machinery, the tear glands. The tear glands lie above the eyeball and under the upper lid, and the eyelid is equipped to spread the moisture they provide over the surface of the eye. They put forth a chemical called lysozyme, so powerful against eye bacteria that scientists claim one tablespoonful is equivalent to 100 gallons of salty water against germs that attack the eye. Is it any wonder that, of the thousands of eyes we meet, we so seldom see an infected eyeball?

The eye has an extensive and rapid circulatory system. The optic nerve has a blood vessel all its own. For that reason, when we get the eye relaxed and the circulatory channels opened, the circulation improves. Thus, the eye has a better chance to normalize itself.

We have described the most important parts of this camera eye. Let us see how it works when it functions properly.

The voluntary portions of the extrinsic or outside muscles turn the eyeballs so that the pupils may face, or focus on, the object to be viewed. The involuntary portions of these muscles lengthen the globe if the object is close by, flatten the eye if the object is far away. Proper lengthening and flattening of the eyeball itself enables the shadow image to fall on the proper point of the retina, the macula.

The picture enters through the watch crystal cornea, through the clear fluid back of that, through the pupil formed by the iris, through the clear crystalline lens that

concentrates the light, then through the thicker fluid in the dark chamber and on to the rods and cones of the retina at the rear. The light beam on which the picture rides stimulates the macula and frees the cones of the fovea into activity. When the eye is relaxed, these foveal cones vibrate with lightning rapidity, hunting light all about and in the object viewed, literally etching it in bold relief, flashing out most minute details into vividly contrasting contours of light and dark.

This etched shadow picture is taken by the optic nerve transmission line to the visual centers of the brain where the mind has the opportunity to study the picture and interpret it. The shadow picture becomes conscious vision by a brain process strictly mental. Just how the retinal impressions are registered so that they become conscious vision is not known.

This interpretation of a new object is possible because of stored away former impressions which are called forth from memory. Then, by aid of the imagination, the new picture can be "made out" or pieced together from past visual experience. Eye-mind coordination is then complete and good vision has taken place.

EYESTRAIN AND FATIGUE

Strained eyes have been accredited with the power to impair the body's vitality by ninety per cent. When the system is thus depleted, fatigue is felt as an ever-present condition and the point of exhaustion may be reached before the day is fairly started. Once the mind and eyes

are relaxed, this nerve force is restored for normal functioning, and a person's power and potentialities are tremendously increased.

We have all had the experience of a moderate day's work irritating, rushing and exhausting us because we started the day with tension. But on a day when we feel relaxed, eight hours of hectic activity, multiple problems and many irritations will be taken in stride with no more than average weariness as a result. This can only happen if and when we maintain relaxation while we work.

The optic nerve and the nerves which are distributed in the stomach are in such close sympathy that one can tense or upset the other. An attack of acute indigestion can react on the eyes and lower the vision. Conversely, strained eyes can upset the stomach and bring on indigestion or nausea. Car-sick children, bookkeepers and draftsmen who grow nauseated at their work, get relief when they learn to use their eyes with relaxation.

We cannot relax the eyes without, at the same time, relaxing the entire nervous system. This, in turn, improves the condition of every organ and every part of the body by freeing the circulatory channels from tension, thus speeding the circulation.

Conversely, the body affects the eyes. If a person is anemic and the red blood count low, the retina will be anemic too, and the eyes will lack power and endurance. The same holds true of muscle tone. A person with slack muscles in the rest of the body, will have poor muscle tone in the eyes. This may show up in lack of endurance

and lack of power to maintain good focus. When the blood count and muscle tone improve, a marked step up in vision can be noticed.

Eyes, however, can be affected even more violently by the emotions than by the physical condition. The physical condition is likewise affected by emotions, since mental strain creates tension throughout the system.

The eye is protected from the outside world and has a remarkable ability to repair itself from external accidents but it is exceedingly vulnerable and can be seriously injured inside by what can happen from within, in the mind and in the emotions. Eyes have been known to be cut or punctured, scratched or burned and still mend themselves but apparently-normal eyes have been known to suffer torn retinas and heavy blinding hemorrhage because of grief or shock or mental strain. When there comes a surcease of emotions and mental relaxation can be induced, there may be hope of improvement for even such eyes.

CHAPTER III

General Relaxation: Physical

"People with imperfect sight have a constant strain and tension in all the nerves and muscles of the body. By practicing the body swings properly, fatigue is relieved as are pain, dizziness and other symptoms because the body swings bring about relief from the effort of trying to see or staring." *

—WILLIAM H. BATES, M.D.

ACCORDING to Dr. S. Weir Mitchell, there is but one disease, congestion; there is but one cure, circulation. We say the source of trouble is tension causing congestion, its cure is relaxation permitting circulation.

Authorities agree that relaxation improves any bodily condition or any function because relaxation is the natural state of the normal body.

There are two kinds of relaxation. One is the sort you experience when you go limp like a rag doll, not attempting to do or think anything. The other sort, the secret of all skill, is the ability to maintain the same ease of mind, nerves and muscles while working. Mr. Aldous Huxley aptly named these relaxations for us in his book, *The Art of Seeing*. The first he calls passive relaxation, the second, dynamic relaxation.

* From *Better Eyesight Without Glasses* (Henry Holt & Co., Inc.).

One may have the ability to throw oneself on a bed as relaxed as a sleeping baby but the moment that duty calls or the performance of a task is demanded, every nerve and muscle in the body, including the eyes, may tighten to the point of defeating function. The skill of carrying over relaxation from the rest period into the period of activity, therefore, is the province of the Bates method—the bridging of the chasm between passive and dynamic relaxation.

Success in this transition can be seen vividly in slow motion pictures of athletes. This was illustrated by a slow motion picture of the late Nuurmi, the fastest human being on the cinder track. His motion flowed with a slow rhythm more like floating than running, his toes scarcely touching the ground—no tension, no jerking, no pounding the track. This perfect coordination of mind and body could be possible only with the perfection of relaxed activity—dynamic relaxation!

Now, one cannot demand this relaxation of oneself or determine to do it. One must cease commanding and determining. Instead, with proper understanding and good technique, one allows relaxation to permeate mind and body. Then, and then only, will proper coordination and function take place.

Mr. Huxley writes, "The Art of Seeing improves techniques for producing either kind: passive relaxation of the visual organs during periods of rest, and dynamic relaxation through normal and natural functioning in times of activity." *

* From *The Art of Seeing* (Harper & Brothers).

In learning these relaxations we must consider, first, the loosening of the nerves and muscles, the physical side; and after that the easing of the mind, the mental side. Both are difficult for the nervous person to do. Nothing makes a person suffering with nervous tension more frantic than to be told, "Well just relax for goodness sake, relax!" Surely, he would if he could. No one appreciates his state of nerves and the need of relaxation more than he. But how?

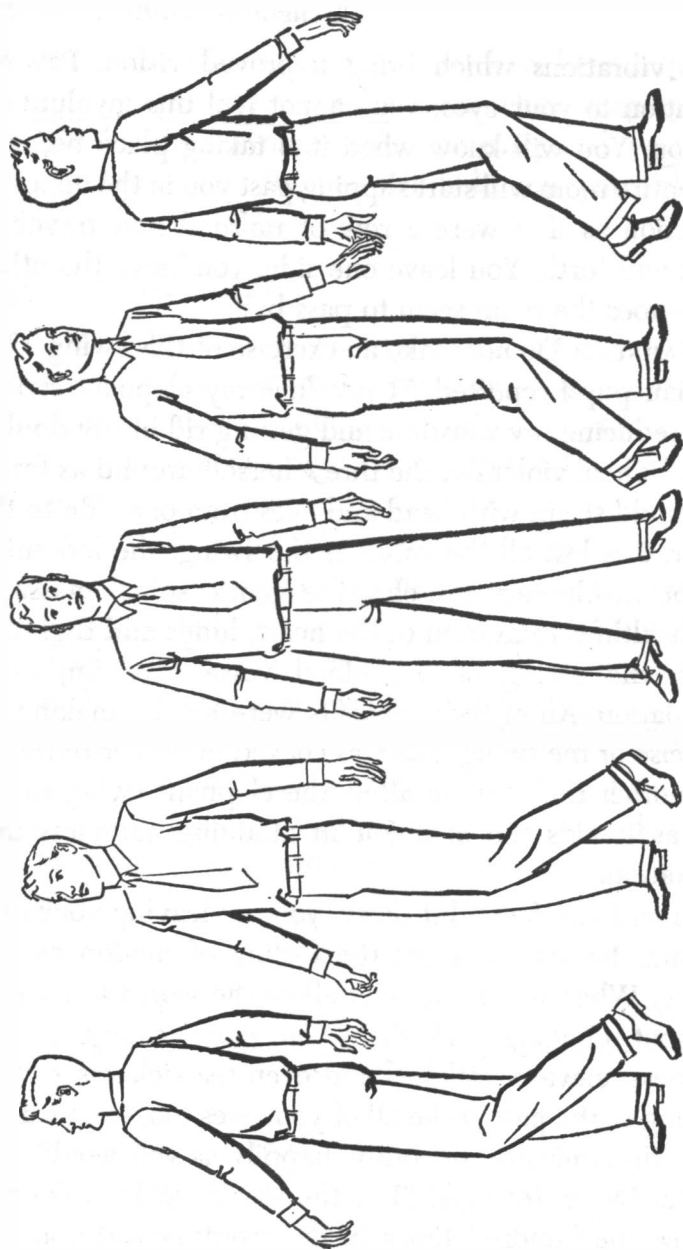
First of all, it does a tense person no good to sit or lie down in an attempt to relax. In fact, it may be impossible for him to do so. Instead, he should do something active with the large muscles of his body because muscular activity soothes nerves. After the large muscles have been worked and wearied, the nerves will be sufficiently calmed to permit a quiet rest period. This is one of the principles of the swings, wonderful devices for inducing relaxation; in reality, a return to nature where rhythm in motion is the rule. The race horse in the stall weaves from side to side, the animals in the zoo sway back and forth, not from impatience but to soothe nerves and release tension. Wild elephants gathering in the jungle rock from side to side and swing their trunks rhythmically, weaving as in a dance. Immobility and rigidity are the products of civilization and the beginning of tension and nerves. So, free the large muscles of their tension first by rhythmic motion. These large voluntary muscles will transfer sympathetically their vibrations to the more minute involuntary muscles, including those of the eyes which start unconsciously their many shifts per second

necessary for normal vision. To this end the following drills for both physical and mental relaxation are offered. Approach them in a receptive spirit with the feeling you would have toward a waltz.

THE ELEPHANT SWING. A Body Swing

Standing with the feet parallel and sufficiently apart for balance, shift your weight from one foot to the other in an easy swaying motion you have seen the elephant use at the circus. As you sway gently from one side to the other, turn head and shoulders with your swing. Let the arms hang limply from loose shoulders, momentum lifting and swinging them free as you turn from side to side. Count aloud rhythmically in tempo with the swing. This is important because when speaking or singing it is impossible for you to hold your breath. Breathholding is a companion of tension. Deep rhythmic breathing is necessary for relaxation and for good vision. Rid yourself of the feeling that this swing is an exercise. Think of it as a pleasant surrender to rhythm such as you would give to a waltz. It is relaxing to play a waltz record and hum the tune as you sway.

Be sure that neck, shoulder and chest muscles are loose and at ease. Swing all of you to one side, then to the other. Up to the count of sixty you are developing the amount of relaxation you need. From sixty to one hundred, you really indulge in full release of nerves and muscles, every vertebra being loosened, all the inner organs being relaxed. Best of all, the eyes, unbeknown to their owner, begin to shift with their many involuntary



THE ELEPHANT SWING

little vibrations which bring improved vision. Pay no attention to your eyes; you cannot feel this involuntary motion. You will know when it is taking place because the entire room will start slipping past you in the opposite direction as if it were a row of railroad cars traveling back and forth. You leave one side, you leave the other side—does the room seem to pass by?

WARNING: Do *not* make an exercise of this swing. One woman pupil reported, "I just love my elephant swing. It is reducing my waistline and getting rid of my double chin." Then, violently, she threw herself around as far as she could strain with head and eyes from one side to the other. She lost all the value of the swing, the loosening of the involuntary muscles, the gentle spinal massage the healthful relaxation of the heart, lungs and digestive tract, the easing of the blood vessels for improved circulation. All of these benefits were lost by making an exercise of the swing. She was coaxed to do her reducing at another time and to allow the elephant swing to aid her as it aids the elephant in attaining calmness and relaxation.

Should you feel a bit dizzy, you are leaving your eyes behind. Be sure you get the feeling of motion as you swing. When mind and eyes allow the world to pass by without clinging and fixing on passing objects, car sickness, elevator sickness and even sea sickness will be a thing of the past. Take all of you, eyes too, from side to side, rhythmically, smoothly, happily as you would in a waltz. Dr. Bates says, "Let the world go by." Do this swing one hundred times in the morning and you will

rid your body of any tension that may have been acquired during sleep, for many persons tense while sleeping. Do another hundred swings before retiring and you will sleep so limply that the bed will hold you; you will not need to support the bed.

THE SAILOR SWING

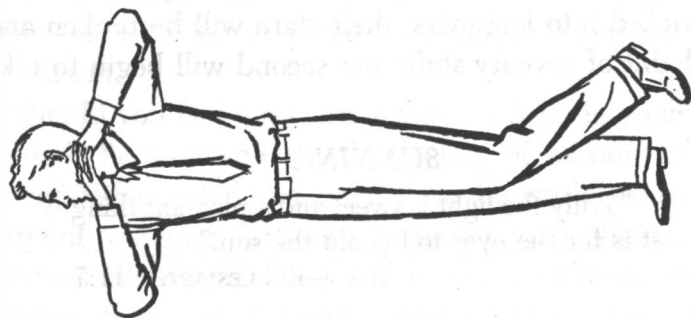
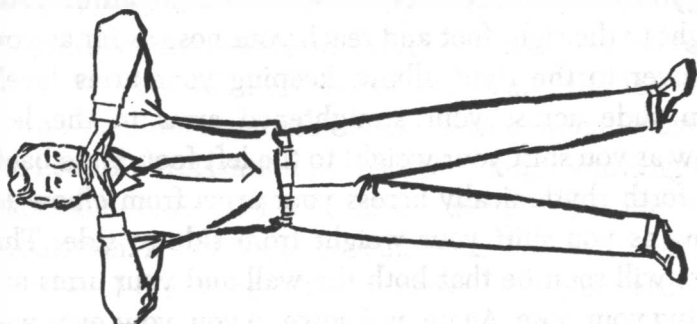
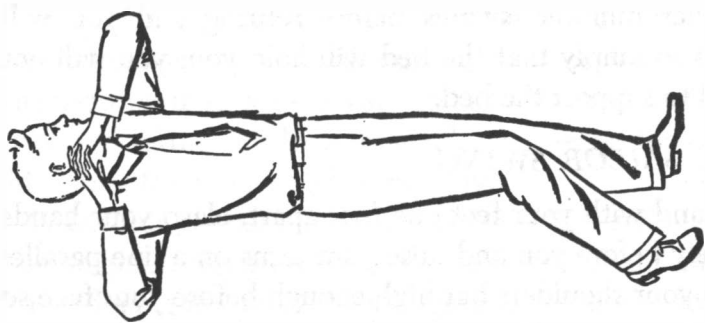
Stand with your feet one foot apart, clasp your hands loosely before you and raise your arms on a line parallel with your shoulders but high enough before your face so that you can just see over them. Now shift all of your weight to the right foot and reach your nose as far as you can over to the right elbow, keeping your arms level. Then slide across your straightened arms to the left elbow as you shift your weight to the left foot. Slide back and forth rhythmically across your arms from elbow to elbow as you shift your weight from side to side. The effect will soon be that both the wall and your arms are passing your nose. Again, unknown to you, your eyes will be tricked into looseness, their stare will be broken and the habit of seventy shifts per second will begin to take place.

SUNNING

“Truly the light is sweet and a pleasant thing
it is for the eyes to behold the sun.”

—ECCLESIASTES 11:7

An explorer returning from darkest Africa with the motion picture account of his experiences was explaining, in the film called *Dark Rapture*, the health and habits of



THE SAILOR SWING

the different native tribes visited. The river natives, he related, fished by hand in the rapids of the African torrents, unprotected from the relentless brilliance of the African sun or the powerful glare reflected from the water. Their marvelous physiques as we saw them in action were stalwart examples of health and vivid vision. Quick of eye and motion, they captured their prey with bare hands, unaided by hooks or tackle. But the pygmies, dwelling in jungle depths amid roots and mold and creeping things, where no sunshine ever penetrated, were sickly, rickety and poor of sight. Sun is good for health and eyes, God's gift to living creatures.

If sun and brightness bother you, it may be due to the old mistaken belief that you must protect your eyes from light. This idea, fortunately, is fast on its way to the realm of superstition. Or perhaps you have made hothouse plants of your eyes and weakened their power to accept and utilize the light which is their necessity for vision.

Eyes are light receivers. The retina must be stimulated by light so that it can register shadow. If you are tense, the impact of bright light is exaggerated and the eyes resent it as a shock. This tightens every part of the eye and cuts off circulation. Pain and discomfort result. But you can gently teach your eyes to accept sunshine again without tightening. They must learn this acceptance because sunshine, the best light, is necessary to eye health and normal activity. Good vision takes place in light, not in darkness.

The sun does wonderful things for the eyes. It loosens tight muscles. Anyone who indulges in sun bathing knows

that no muscle can maintain as great a rigidity in the warm radiance of sunshine. Nerves, tendons and muscles just naturally let go. So it is with the muscles of the eyeball.

Sunshine stimulates the optic nerve and aids the retina in rapid replacement of its visual purple. Sun-starved eyes are dim of vision, their optic nerves sluggish in circulation and unstimulated, their retinas slow in replacement of the visual purple.

Sunshine soothes tense minds. When you are worried, your heavy problems to be solved will not bear you down so desperately if you can go out and take a brisk walk through the sunshine.

Sunshine regulates tear glands so that they will furnish sufficient but not superfluous lubrication and disinfectant for the eyes. The tear ducts that drain eye moisture through the nostrils are kept open and free when plenty of sunshine is given them. The result is that well-sunned eyes do not suffer the irritation of gritty or itching eyelids. This "sand in the eyes" is a frequent complaint of persons who must use their eyes steadily.

Suppose that your eyes *are* unused to light and air, and resentful of all brightness, particularly the brilliance of the sun. Re-educate them. Be gentle about it; do not rush out and attempt to stare into the heavens. You should never stare, least of all at the sun. Instead, lessen the shock of contrast by accustoming the eyes to light in easy stages. Stand in the sunny doorway or at the shadow's edge by the wall. With your eyes closed, face raised to the sun, sway like the elephant, turn your head

into the shadow on the one side, through the sun and into the shade on the other side. Rest your hand on something, if necessary, to keep your balance. The sun will seem to pass your face. Breathe deeply as you swing and put your mind on this illusion of motion: the sun moving to one ear, then past your face to the other ear as you sway. Before long, the brightness will cease to be a punishment and will seem pleasantly soothing instead. Practice this sun conditioning for a few moments at a time throughout the day until it ceases to be an ordeal and you can keep your face calm and eyelids loose and easy. Then you will be ready for the next step.

With the palm of your hand, darken one eye so that no light can be seen, but cover the eye loosely enough so that it can close and open with its partner. Now start your elephant swing and, remembering to breathe, blink at the ground as you go by. Then, raising head and elbow, blink right through and past the sun itself. To your amazement, you will suffer no discomfort or shock. Repeat the sun-blinking the same way with the other eye. Do not attempt to blink at the sun with both eyes at once although it would not injure the eyes—we have all had many flashes of brilliant sunshine in both eyes when at the ocean or on the highway with no detrimental or disastrous after-effects. However, it requires more effort to blink into the sun with two eyes than with one. In all our relaxation drills, the easiest way is the best.

As to how much sun you should take at a time, your judgment will guide you. Frequent sunnings of short duration are best. Govern these by your comfort and

how thoroughly conditioned your eyes have become to brightness. Do not stay until your eyelids burn. You could enjoy more sun on a cold winter day than on a hot desert at noon. A little sunshine, and often, is better than protracted bakings.

Do not let the sun dots and dashes frighten you. They are after-images which remain on the retina. A few moments of darkness will fade them right away. Dull retinas are never so dull of vision after their first sunning. Go inside and cover the eyes with the palms for twice the time you spent in the sun. As your eyes strengthen, the after-images will leave at once without this rest called "palming."

Bear in mind that it is the shock of sudden contrast that bothers the eyes, not brightness itself. So bathe your closed eyes in the sun whenever you come out of a dark room or building and before entering your car to drive against the glare.

If you will faithfully practice your sun-blinking, no indoor lights or highway headlights can bother you.

The sun will polish the eyes until they shine like jewels. Do not dull and weaken them with dark glasses.

Sun is food and drink to vision.

THE EFFECT OF BREATHING ON VISION

Everybody knows that deep breathing is necessary for health. Some bodily ailments have been remedied by good breathing habits. Few persons know, however, that deep breathing is essential to vision. Anyone can demonstrate that holding the breath long enough will "turn

things black before your eyes." Yet people with poor vision invariably hold their breath while doing their seeing or, at best, breathe shallowly as if merely to maintain life in the body. Draftsmen strain or tire at the drafting board. On questioning, they admit that they become so intent that they forget to breathe. The same is true of artists, accountants, stenographers, and others who work at desks. The eyes must have oxygen and improved circulation. Deep breathing is the only means by which they can achieve this.

There are many schools of breathing. We have learned that the sort of breathing that turns on vision is the sigh.

Inhalation, the drawing of the breath, is more or less effort—muscles do things. Holding the breath is tension and will show in the face which will redden or, in the extreme, turn blue. We have all seen a recalcitrant child hold its breath to frighten the nurse into compliance with some whim. But the letting out of the breath, exhalation, is complete and utter relaxation. Every part of the body loosens with a deep sigh. All of you lets go. In letting go, the lungs free themselves of the deoxygenized air, thus clearing the body of wastes. The eyes benefit immediately. As an example a man returning from blindness was able to clarify the image of the object he wished to see whenever he sighed. Of course, in order to exhale, he had first to indulge a deep breath.

Yawning, a craving for oxygen, starts circulation and is both stimulating and relaxing. But a sigh has one effect, one objective—that of loosening and releasing all tension.

Sighing is such a natural thing. A baby gives a last sigh before it turns its face on the pillow and settles into deep slumber. A puppy sighs after it has thrown itself on the rug for a peaceful nap. Children coming out of a hard crying spell, from the tension of fright or anger, sigh convulsively, the body struggling for relaxation while someone dries away the tears. The sigh prepares them again to resume their normal mood. A smile is then possible. There is a saying in the hospital that, after surgery, the first sigh indicates that the crisis is passed.

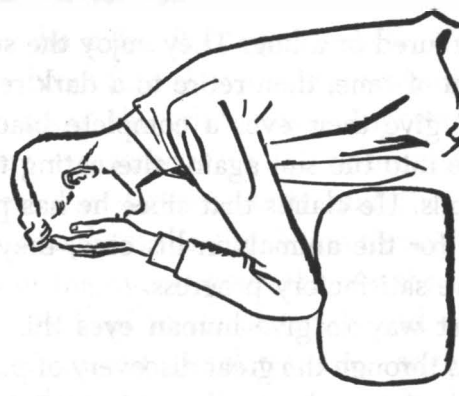
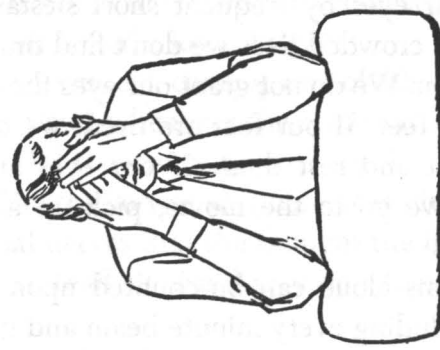
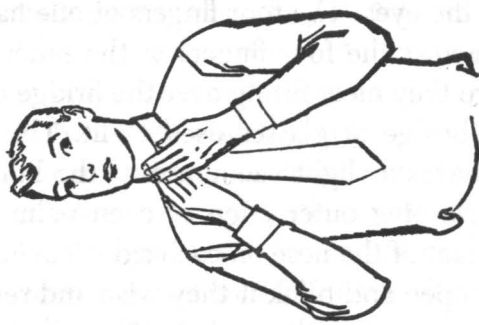
If, when a person wishes to see clearly, he would exhale a deep breath, vision would become more vivid and, in dim eyes, a flash of vision might turn on.

Remember to breathe deeply and rhythmically, especially when using your eyes. Breathing is essential to vision as it oxygenizes the blood which has been narcotized by holding the breath during periods of rapt attention.

PALMING

Eyes work by contrast. Being organs of light, the greatest contrast they can experience is the contrast between light and darkness. When open, they receive light and reflect it. If the eyes are closed and covered after light has entered, the retina and optic nerve absorb the light and are thereby strengthened, the visual purple being restored and replaced more rapidly.

Animals instinctively know the good of contrasting light and dark. A famous veterinarian told me that he puts his sick dogs into the sunshine, particularly if the



PALMING

eyes are injured or ailing. They enjoy the sun for a certain length of time, then retire to a dark region he provides and give their eyes a complete blackout. Later, they come into the sun again, alternating the light and dark periods. He claims that since he has provided this treatment for the animals in his care, they are making much more satisfactory progress.

The best way to give human eyes this rest of utter darkness is through the great discovery of palming. Eyes, even the most normal ones, *do* need rest. Primitive people rested their eyes by frequent short siestas. But in our rushed and crowded lives we don't find time for this sort of relaxation. We do not grant our eyes the consideration we do our feet. If our feet are tired, we quickly find a place to sit and rest them. If our eyes are exhausted, however, we go to the movie, pick up a magazine or play cards.

The palms alone can be counted upon to give utter rest by excluding every minute beam and gleam of light. Again, each person's own palms fit perfectly over his own orbits, the bony structure of the palms corresponding to that about the eyes. The four fingers of one hand should lie gently across the four fingers of the other hand, the angle where they meet fitting over the bridge of the nose where the bridge of glasses used to fit. The hollow of the hand makes a slight vacuum over the hollow of the orbit; the slanting outer edge of each palm fits neatly along the slant of the nose on each side, leaving room for the eyes to open and blink if they wish and removing all danger of pressure on the eyeball. Though the eye feels

the nearness of the palm, it is not touched. The slight pressure on the brow furnishes a gentle massage to the delicate nerves about the orbit; this is important, since these nerves are sympathetic to the optic nerve. The warmth soothes, the darkness rests and the muscles loosen. All this stimulates the circulation through the relaxed channels of the eye. It gives the eye the opportunity to cleanse itself of waste materials and repair its defects. Furthermore, rest stimulates nerves so that while eyes are being palmed, the optic nerve is actually being stimulated. Then, when the palms are removed, the eyes truly see better—the world looks brighter.

Once a woman student coming out of blindness invariably gasped aloud whenever she removed her hands from palming, "Did the sun come out?" or "Did you put on the light?" The studio was so much more vivid to her stimulated retinal nerves that she thought the light must have changed. Instead, it was her vision that had improved.

Experiment with your palming position to perfect it for fit and for comfort. Put the left palm over the left eye on the angle with your nose and try to achieve a perfect placement. Be sure your eyebrow is propped a little high so that it does not weigh heavily on the upper lid. Jockey a bit between the brow and the cheekbone until you sense a slight vacuum. Keep the hand loose and soft, the fingers limber. Does your hand make a perfect cover? If not, note if your fingers are held tightly together in a clawlike stiffness. A stiff hand will never fit your face. Shake the hand until it loosens and the fingers are limp.

Now, brow high, blanket your closed eye with a soft warm palm and let it rest.

Next, without dislodging the left hand, try to place your right hand over the closed right eye just as comfortably and with the same care. It can be done and if you are careful that it is the palm of your hand, not the closed fingers, covering your eye, you will soon succeed. Keep your hands at an angle sufficient to prevent your nose from being too compressed for comfortable breathing.

It would be tiring and defeat relaxation to hold the elbows in the air while palming. So bend from the waist-line and place your elbows at a comfortable angle on your knees, or on a desk or table top. Be careful that the neck follows the line of the backbone, for the head must be neither thrust back nor bent forward. Let your closed eyes sink into the soft warm palms of your hands—and rest.

To palm while reclining on one's back is also very relaxing. In this position extra pillows can be crowded up under the elbows to brace them.

Since the purpose of palming is to rest the eyes, keep them closed. At the same time you should rest the mind. This is easy to do even on a busy day with only a few minutes to spare. Indulge in pleasant happy memory or some mental pictures (memory pictures) or mental drills like those given in Chapter IV. Remember that to sit and fret or worry or grieve while you are palming would nullify all the good that covering the closed eyes might do. Eyes and mind work together. If one is tense, the

other tenses. If one is relaxed, the other is too. So soothe the eyes with soft warm palms and let them rest in mental peace and darkness.

Palming will be found more efficacious if the body swings can be done for a few moments in preparation. Then, ten- or twenty-minute palming periods will be welcome. Even two or three minutes of palming, if one is short of time, will be found most refreshing. A little rest, often, will prevent exhaustion. Eyes with serious afflictions will find one-hour periods of palming most beneficial while listening to the radio or chatting with friends.

Start the day by palming five or ten minutes in bed; finish it the same way after retiring.

Students can sandwich palming periods into their study hours. After reading a chapter, they can palm to rest their closed eyes, and mentally go over what they have read. If memorizing a poem, they can read a verse, cover the closed eyes and memorize, open them to verify, and so on.

Palm, if your eyes are tired. Palm, if your eyes hurt. Palm, if a headache threatens. Just as strained eyes sap the vitality and drain the nervous system, so relaxing the eyes sends ease and relaxation throughout the entire body, resuscitating and rejuvenating tense nerves and tired muscles. Palming, done correctly, brings relaxation. Relaxation is not so much a process as a result.

CHAPTER IV

General Relaxation: Mental

“Sensing is not the same as perceiving. The eyes and nervous system do the sensing, the mind does the perceiving. The faculty of perceiving is related to the individual’s accumulated experiences; in other words, to memory.” *

—ALDOUS HUXLEY

DR. BATES discovered how to relax a tense, busy mind for a few moments of respite in the midst of toil on a trying day. This is done through memory of pleasant happy events and experiences or beautiful things you would like to see again. The underlying principle is this: You cannot mentally do two things at one time. It is impossible to remember pleasant scenes and, simultaneously, to worry over problems, which means to strain. Remembering scenes or events you have enjoyed is cheerful memory, hence relaxing. Worry is an unhappy activity, therefore tensing. One can choose and determine for a few moments to relive a joyous experience or to remember something beautiful one has seen; that is, indulge in mental pictures, look through a window into the past, thus obliterating, for a moment, the troublesome present.

To quote Dr. Bates: “Perfect memory of any object

* From *The Art of Seeing* (Harper & Brothers).

increases mental relaxation which results in a relaxation of the eyes and both together result in better vision.” * Briefly, memory brings vision.

In the visual process, light rays are reflected from an object onto the nerves of the retina and the impulses carried by the optic nerve to the brain cells. In mental picture work, if a pupil can remember an object the process is reversed; the impulse will be sent in the opposite direction. Psychologists teach us that to see a statue the eye must traverse every part of it. To remember the statue again the eye traverses the image in imagination, not spot-photographing it but reviving, in memory, the sensations and motions that enabled us to see the statue from top to base in the first place. This revived motion starts the shifting or vibrating within the eye of the retinal nerves as if they were being used in perfect vision, even though the eyes remain closed. This prepares the eyes for vision when the lids are lifted.

The danger of visualizing a stationary object like a statue is that the mind may fail to travel over it and instead remain fixed in a mental stare. One can stare and strain in the mind with closed eyes, even to the point of pain and fatigue. Minds and eyes are not constructed to think or see more than one thing at a time. They must see every part of one thing in rapid succession or different things in series. To avoid the danger of a mental stare, it is better to visualize people or things in motion. This starts thought and vision shifting rapidly. Correct mental pictures put both eyes and mind at rest because

* From *Better Eyesight Without Glasses* (Henry Holt & Co., Inc.).

you cannot both remember and strain at the same time.

Imperfect vision makes a mental strain because it is hard for the mind to interpret a poor image. Conversely, imperfect memory, a mental blur, makes eyestrain because the eye struggles through mental confusion. Using the perfect memory within a keen mind, we can improve vision in dull eyes. When the mind thinks a shape, the eyes do something about it. The two work in perfect coordination; hence, our work is not with eyes but with vision and the mind behind the look. Vision is the product of the mind.

Some persons claim that they cannot visualize, that the moment they close their eyes everything is a blank. This is a misunderstanding of the meaning of visualization. Naturally, when the eyes are closed, sight is impossible; you cannot see with the physical eye. But you can still remember something you have seen. That is mental picture work—true visualization. “Memory pictures” might be a better phrase.

CORRECT AND INCORRECT VISUALIZATION

I once asked a nearsighted little girl who was palming to remember a picnic she had enjoyed attending at some time in the past. The mother spoke up. “Yes, Alice, you are giving a picnic next Saturday. Plan every bit of it, dear.” I had to explain that remembering a happy experience would be easy and fun, therefore relaxing, but planning something which had not yet taken place would be like writing an essay or other composition—real work and tiring, therefore not relaxing.

Mental pictures, memory and imagination, can be used to bring about relaxation under extreme conditions. A woman, sorrowing over the sudden death of her husband, was despondent. Her friends were helpless to comfort her. She could not eat or sleep. She could find no respite from her grief but paced the floor night and day. I called to see if I could help. I asked her to sit by me in an easy chair, took her hand and asked if she could remember the trip she and her husband took together years before. Having heard a few of the incidents, I helped her reconstruct that pleasurable experience. As she indulged in memory of the happy days before the blight of tragedy, she rested her head against the chair, the swollen face relaxed and finally, when she failed to answer one of my questions, I saw that she was peacefully asleep.

Another dramatic result of the relaxation brought by mental pictures was the case of a young man who suddenly lost the sight in one eye. Doctors told him he was suffering from a detached retina, that an operation would be necessary but that they could not guarantee the results. He was frantic with apprehension and fear of blindness in his better eye which had never been too good. For a week he had not been able to eat or sleep but smoked and stormed about, on the verge of a nervous breakdown. His wife brought him to me as a last resort. I made him lie flat on his back and cover his closed eyes with his palms, and told him to listen. For twenty minutes I gave him a series of vivid but quieting mental pictures. Gradually, his tension eased, his teeth unclamped and his breathing became smooth and regular though he

was not asleep. Finally, I said, "Sit up slowly, easily and with a sigh." Immediately, he covered his better eye and cried out, "Venetian blinds! Oh! I see Venetian blinds! I must be peeking! No! I have sight! I can see!" During his visualization this man's eyes had relaxed; the retina had fallen back into position and re-attached itself. "Spontaneous re-attachment," the doctors would call it.

If memory and imagination through mental pictures can aid extreme cases such as these, think how much they can do for mild cases of strain and refractive error. Read over the following experiments. Select the one that appeals to you, then sit down comfortably, cover your closed eyes with your palms, and try it. Do not work with or think of your eyes. Remember, mental pictures are memory pictures deep back in the mind, not forward in the physical eye.

MENTAL PICTURES FOR RELAXATION

1. Stand on a balcony of a little cabin at the edge of a crystal-clear mountain lake in the deep woods. On the floor of the balcony have a basket of heavy balls of various sizes. Pick up the largest ball, give it a mighty heave. It will splash into the placid water and disappear, sending a series of strong ripples circling out towards the shore. Finally, the ripples fade, the lake is smooth again, mirroring the sky and surrounding trees. Now throw the next largest ball and watch the ripples, not quite so far-moving or so violent. Choose and toss ball after ball, watching the splash and the ripples, each ball smaller

until you take the very smallest, the size and weight of a marble. This makes little fast-traveling ripples that very quickly quiet down and once more allow the water's surface to smooth and reflect a puff of passing cloud.

2. One pupil, a motion picture star, liked to remember a summer day as he sat at the edge of a deep swimming pool, under an umbrella. In memory, he would sip cool drinks and watch a feminine diving contest. He would see one contestant after another climb the ladder to the springboard, trip out to the board's end and pose. He would note the gay color of her bathing suit as she balanced with arms extended, then imagine her executing a fancy dive, cutting the water clean, to disappear from view. In memory, he watched for her to reappear at the opposite end of the pool and join the others.

3. An elderly woman enjoyed a visit to a florist shop. She would remember all the beautiful flowers likely to be found there in spring, summer, fall and winter.

4. A bridge fan enjoyed going through a deck of cards mentally, recalling the spots on each card and how they were arranged. Then, being an expert, she would reconstruct a winning rubber she had played recently.

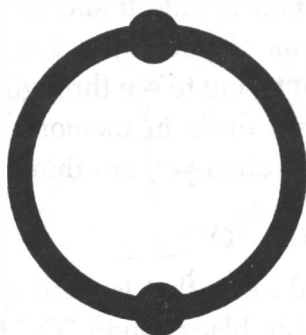
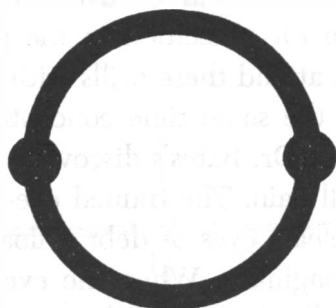
5. One young man whose sport was bowling liked to remember a bowling match in which he had run up a big score against his opponent.

6. A little girl liked to shoot with her bow and arrow at beautiful colored balloons as they were released into the breeze, one after another, floating across the sky.

7. One who loved the ocean liked to watch, in memory, sparkling summer seas with heavy surf, each breaker as it gathered and plunged to shore tossing its lace-fringed ruffles to the breeze.

Suppose, however, you are in no mood to think beautiful scenes but have five minutes respite in a hectic day that you could use for palming if only you were able to relax your mind. Here is a suggestion: Remember the shapes of some familiar things, the most familiar shapes in our civilization being letters or numbers.

Can you remember how a white board fence would look if you stood at one end and glanced down its row of thirty boards? They are wide boards, spaced neatly about two inches apart. But this is not the usual rough whitewashed board fence. These boards have been sand-papered to a satin smoothness, then painted with shiny white enamel so that they glisten in the sun. Can you imagine approaching the first white board, small paintbrush in one hand, a pail of blackest enamel in the other? Dip your brush into the black paint and carefully print a black numeral "1" on that white enamel board, then step over to the next board. On it, paint a numeral "2" and step over, paint numeral "3," etc. When your brush runs out of paint, dip it again into the black enamel to keep your numbers on the white boards uniform in blackness. Probably long before you have arrived at "30," your mind and your eyes will be relaxed for you cannot do two things at one time, fret and loosen, or worry and relax.



SHUTTLING THE "O"

MECHANICAL DRILLS FOR RELAXATION

(To be done mentally, with closed eyes)

The following are mechanical drills, mental narcotics, that are effective for relaxation to the point of easing pain. You cannot attend these drills with complete mental focus and at the same time concentrate on misery. This is the basis of Dr. Bates's discovery that to swing a black dot will kill pain. The trained eye-shift speeds up circulation and clears eyes of debris, floaters and spots, both real and imaginary. When the eye shifts, it sees. The following drills start the shift.

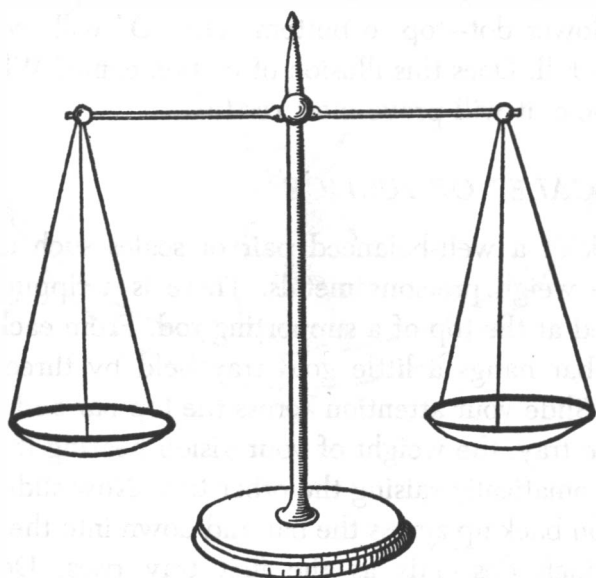
Do these drills with lids closed loosely. Palm if convenient but if you are in a place where palming would be conspicuous, you can omit it and still benefit from the drills. Do not think of your eyes. Let the physical eye retire—you are *not* trying to see through closed lids. Your mind will do these drills in memory. Point your nose mentally in the direction you are thinking.

SHUTTTLING THE "O"

1. In your mind's eye, that is, with eyes closed and in memory, draw a big black round "O." Can you remember how an "O" looks?

2. On the left black curve put a black dot; on the right curve put another black dot. The black dots on the "O" will be lost in the blackness but you know where you put them so you can return to them in memory.

3. Do just that, pointing your nose and attention from one dot to the other, from one black side of the "O" to



THE SCALES OF JUSTICE

the other, from side to side until the "O" seems to shuttle out of your way as you travel from one dot to the other dot.

4. Now put a black dot at the top of the "O" and another opposite, on the bottom.

5. This time direct your attention to the top dot, then to the lower dot—top to bottom. The "O" will seem to rise and fall. Does this illusion of motion come? When it does come, it will prove most restful.

THE SCALES OF JUSTICE

Think of a well-balanced pair of scales such as are used to weigh precious metals. There is a tipping bar balanced at the top of a supporting rod. From each end of the bar hangs a little gold tray held by three gold chains. Slide your attention across the top bar and down into one tray, the weight of your vision bearing it down and automatically raising the other tray. Now slide your attention back up across the bar and down into the other tray which descends as the first tray rises. Do this thoughtfully and rhythmically, remembering all the while what happens to one tray as you bear down on the other. Many persons find this most relaxing.

THE OWL AND CRESCENT SWING

With closed eyes, imagine a sky-blue card about 3 x 5 inches in measurement. In the center of the blue is a small silver crescent moon, points up. In the middle of the crescent sits a tiny black owl silhouetted against the



THE OWL AND CRESCENT SWING

blue. Now, in memory point your nose to one crescent tip, then slide down the curve and up to the other tip. The little moon will rock like a cradle with the owl tipping one way, then the other.

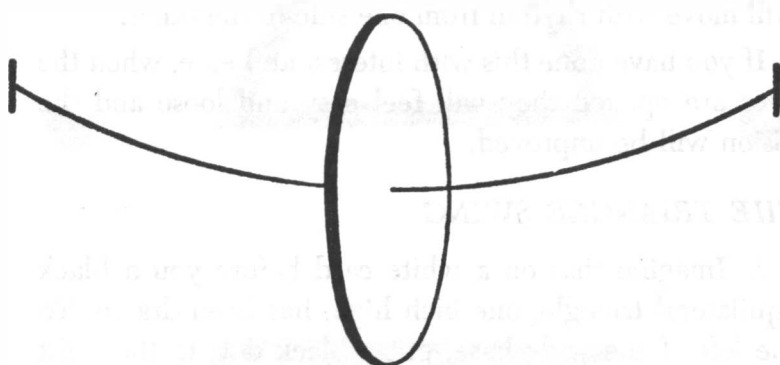
A large number of persons obtain great ease from this memory picture.

THE METAL DISK

1. Imagine that in your hand you hold a heavy metal disk the size and weight of a silver dollar. It has a smooth hole through the center. Thread the disk on a white cord about a foot long. Pick up one end of the cord between the thumb and finger of the left hand, and the other end between thumb and finger of the right hand. Hold the cord taut to make a white line, disk in the center, at a comfortable distance before your face. Now point your nose at the fingers of one hand, then slide your mental vision across the white cord to the other hand, slowly, rhythmically, back and forth. The metal disk in the center seems to shift a little from one side to the other, in the opposite direction.

2. Now allow the cord to loosen a bit so that the heavy disk hangs low in the middle. Start the disk swinging gently toward you and away from you as you would rock a hammock, rhythmically back and forth, back and forth, not too fast.

3. Next let the hammock-swing gain momentum, higher and higher, until you take it *all* the way around like a jump rope, mentally remembering the disk as it completes its circle around and around.



THE METAL DISK

4. Now "let the old cat die," as children say, and the disk again rocks gently to and from you like a hammock. It is fun to do the jump-rope swing around the opposite way, then again swing the hammock gently, to and fro.

5. Finally, and without a jerk, tighten the cord until it again forms a taut white line before your face, the disk in the center. Slide your mental vision across the cord from one hand slowly to the other. Once more, the disk will move with rhythm from one side to the other.

If you have done this with interest and ease, when the eyes are opened they will feel easy and loose and the vision will be improved.

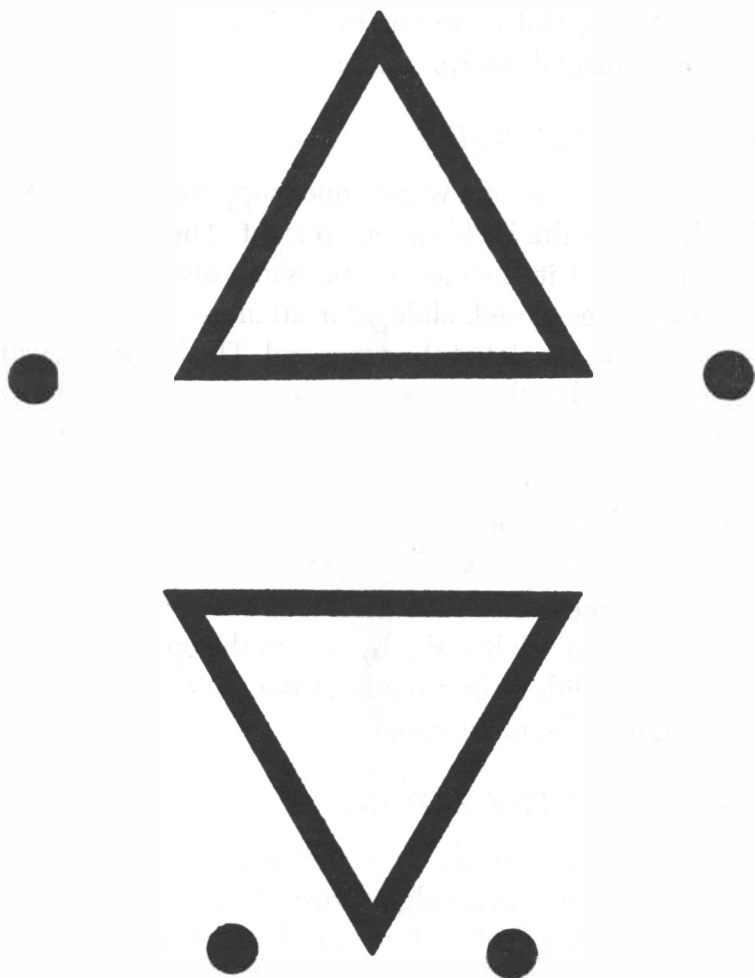
THE TRIANGLE SWING

1. Imagine that on a white card before you a black equilateral triangle, one inch high, has been drawn. To the left of the wide base, put a black dot; to the right put another black dot.

2. Now, with a sigh, point your nose to one black dot, slide across the card to the other, back and forth. Pay no attention to the triangle which seems to slip aside, in the opposite direction, as you travel from dot to dot. Do you get this illusion of motion?

3. Turn the triangle upside down so that it stands on its peak. This time, place the black dots to left and right of the point.

4. Swing your attention from dot to dot rhythmically again. The sharp point will actually seem to shift a bit from side to side in the opposite direction. The triangle



THE TRIANGLE SWING

takes care of itself, slipping out of the way so that you can see first one dot then the other.

A dot is restful to see or think about because it requires no mental interpretation.

THE SHUTTLE SHIFT

1. In the center of a white paper suppose that a heavy line has been drawn from left to right. There is a black dot in front of it, another dot the same distance after it. With the eyes closed, slide your attention from the dot at one end to the dot at the other end. The black line will seem to travel in the opposite direction.

2. Now turn the line upright so that the dots are above and below the black line. Again, slide your attention from dot to dot. The black line slips up and down in the opposite direction from your eyes.

3. Turn the picture diagonally either way and, once more, let the black line slip by you, in the opposite direction, as you slide your attention from the dot at one end to the dot at the other end.

SHUTTLING THE DOMINO

1. With eyes closed, remember a small black ebony domino with a raised ridge across the middle, dividing it in half. In the center of one black half is a very white dot; in the center of the other black half is a duplicate white dot.

2. Now, mentally holding the domino horizontally be-



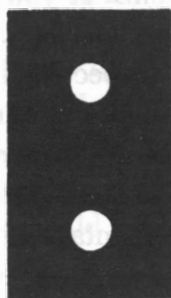
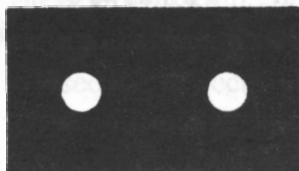
THE SHUTTLE SHIFT

fore you at a comfortable distance, point your nose to one dot, then to the other, back and forth. The domino will seem to move in the opposite direction from your nose.

3. Next mentally put the domino on end. One dot will now be in the upper half, the other in the lower half.

4. Shift your mental focus from the upper dot to the lower dot. The domino will seem to rise and fall.

Some of these drills you will like, hence derive benefit from; some may not appeal to you. Select as your own the one or two that bring you ease and do them when exhaustion threatens. It will take but a moment at your desk to close your eyes and think a drill which will stave off fatigue. And remember, a little rest is never time squandered. You can accomplish more and with greater speed thereafter.



SHUTTLING THE DOMINO

CHAPTER V

Vision: Centralization and Light

“The eyes are the windows of the soul.” It may be added, “Vision is the mind looking through.”

WE SEE, hear, taste and smell with the mind. If you attempt to study, your attention elsewhere, you learn nothing of your subject. If you attend a concert and sit worrying over some problem, the program is naught but distracting clatter. If you pass through a rose garden, your mind intent on things beyond, you fail to catch the perfume of the blossoms. If you read a thrilling article as you eat, the food is tasteless. The sense organs are merely aids to their respective brain centers; it is the mind which perceives. If the mind is tense and strains or is temporarily absent, the senses cannot function. Conversely, there is no such thing as eyestrain without first a mental strain, a mental tension or effort.

It has been proved that one with a high degree of myopia or hyperopia resting the vision on a blank surface where there is nothing to interpret, loses the refractive error. But the moment that marks are put there, mental strain to identify them takes place and refractive error ensues. Fear is the basis of imperfect vision, fear of not being able to see. This causes tension and strain which result in poor vision.

One young applicant for the Air Corps who possessed better than 20-20 vision looked so hard at the test card to read the letters perfectly that he made himself highly astigmatic and called most of the letters wrong, confusing E with Z, F with P, O with C, right on through and, failing the test, was rejected and put into the regular army. Fear of not seeing perfectly defeated good eyes.

Conversely, a cross-eyed lad of ten demonstrated how clearing the mind of fear will turn on unexpected vision. The little fellow came to us with one crossed unused eye, extremely low in vision. We worked with that eye through relaxation and built the vision at six inches, then stretched it to a foot, two feet, four feet, as the weeks went by. One sunny morning I said, "Jackie, how would you like to stand across the room and read your sentences today?" He went into a regular dither of fear, displaying utter panic at the thought of having to face the hazard of distance. "Now Jack," I coaxed, "if you put no more effort into your look at a distance than you do at the close point, you will see as well far as near."

"Is that right?" the child asked earnestly.

"You can prove it," I said.

Standing across the room with his eyes closed, the little fellow began to rock from one foot to the other.

"What are you doing? Feet tired?" I asked.

"No," he answered, "I'm just walking up closer mentally."

When, with childish faith, he had walked up mentally very close, he opened his eyes and read accurately all the sentences I put up for him.

Unfortunately, it is not so easy for an adult to banish fear and turn on vision. One with many preconceived ideas has to approach it in more roundabout ways.

Vision is an impulse. Impulses cannot be commanded. You either see or you do not, you feel hunger or you do not, you flare up with anger or you do not. You cannot determine to see, to be hungry, to get angry. You either prevent response to an impulse, subdue it or let it have sway. Each time that response is granted, the impulse is strengthened; each time it is throttled, baffled or defeated, it recurs less vividly and less insistently next time. The visual nerves of the retina respond to impulse. Vision either happens or it does not. The keenest seeing part of the retina, the macula, responds to the impulse of sight or it does not. This is an unconscious procedure. The condition of response is relaxation. When the eye and mind are relaxed and at ease, the retinal nerves function.

CENTRALIZATION

Dr. Bates coined the term "Central Fixation" and defined it to mean "seeing best where you are looking," at the point of greatest mental and visual focus. This centralization accurately describes the phenomena of seeing with perfect vision, that is, the bringing into play of the retinal nerves which are equipped to do our keenest seeing. The fovea, which is the most sensitive part of the center of sight, or macula (see page 12), has been called the light-finder, the child of impulse. It unfolds to do its duty only when the physical eye and the mind are relaxed, that is, relieved from the compulsion originated by the mind. Any compulsion from mind or eye muscles

closes the cone-shaped nerves of the fovea tight like a sensitive plant, then only general or blurry vision takes place since the other nerves of the retina are not equipped to do the keenest seeing. When the sensitive light-finding nerves of the fovea become active, every portion of an object regarded stands out in extreme vividness while the cones are vibrating over it with such speed that the entire object seems to be seen all at once.

For this reason, if you determine to see one thing best or one part of a thing best, you are attempting to do the impossible, trying to command an impulse. If, however, you will relax the eyes and mind, release them from compulsion and just *let* vision take place—that is, give way to impulse—the eyes will assume their normal shape and the light-seeking cones will be vibrated by the light reflected onto them from every portion of the surface of the object regarded. In this way, the object is clearly outlined as a shadow. Thus, for the fraction of a second it takes the fovea to be stimulated by the light from each part of the object, you see *that* part more clearly than any other. The mind, being relaxed, interprets accurately for size, shape, depth and distance, and clear vision has taken place.

If, on the other hand, you determine to see one corner of a picture best, and consciously fix your attention upon it, you hold mind and muscles rigid in a stare, which tenses the mind and makes impossible the foveal shift. This directs the vision that does take place onto the less sensitive cones and the rods of the retina, and very imperfect sight is the result.

Staring long enough and hard enough will actually

blind a person for the time being. If staring becomes a permanent habit it cuts down vision as nerves, mind and muscles rebel. For example, one pupil relates that when, as a child, she spent hours each week in the Chicago Art Institute admiring the pictures in the galleries, she was struck, one day, with the thought that she might never be able to go there again. So she decided to memorize her favorite painting. She stood before it, fastened her gaze upon it, firmly determined to drink it in, to absorb it indelibly so that she would never forget it. As she stared and her eyes grew weary, the picture began to grow dimmer and dimmer until it gradually faded away. Her vision turned completely off and she had to grope for a chair in the center of the room. Terribly frightened, the child decided that God had not wanted her to remember that particular painting. She was afraid to look at it again. To this day, she has not the least idea what even the subject of the painting was. Her eyestrain was so great that the mental strain accompanying it was equally powerful and both memory and vision were completely obliterated. Vision, of course, returned when the eyes recovered from their protracted staring but fear kept the memory of the painting a blank.

Although this is an extreme example of how detrimental prolonged staring can be to vision, many persons permanently reduce their visual acuity by continually staring with every look, a series of miniature stares.

To summarize, the fovea is a light-finder; the mind is an interpreter of shadows. Both coordinate to do their duties only when they are relaxed.

The material in subsequent chapters is designed to show sufferers with eyestrain how to let go and look with relaxation which will bring centralization and eye-mind coordination. This is vision.

LIGHT

The retina is stimulated by light, shocked by shadow. The fovea is interested only in light and hunts light all around this shadow, through thin places, through openings and crevices, in angles and around curves. The brighter the light the better it can shine through and the more vividly the object observed throws the shadow. Therefore, a good light is necessary. As Aldous Huxley states: "In insects and fishes, in birds and beasts and men, eyes have been developed with the express purpose of responding to light waves. Light is their element; and when they are deprived of light, either wholly or in part, they lose their power and even develop serious diseases." *

The mind, a shadow interpreter, is soothed by light if it is unbroken by shadow since no interpretation is called for; hence, sun-bathing rests and relaxes tense minds. The mind is interested only in the shadow to be analyzed. The stronger the light, the sharper the contrast between the light and the shadow falling on the retina to stimulate the light-finder and quicken the shadow-interpreter. Therefore, good light is essential to good eyesight. We all know this: that we see well on a clear day, dimly on a dark night.

Homes are heavily draped and shrubby-shrouded.

* From *The Art of Seeing* (Harper & Brothers).

Business offices, banks, libraries where accurate vision is a necessity are notorious for their dim cathedral lighting. Many lawyers have told me that their eye troubles started in law school, pouring over the tomes in dimly lighted libraries. Many school children do their homework beneath a low-power light in the ceiling giving no attention to how or whether it strikes the page. People read in living rooms at home by floor lamps which throw their brightness against the ceiling, not down on the gray print of the newspaper where the eye needs the light. Dim light slows down the shift of even normal eyes, consequently tiring them more quickly. If use of good eyes under these conditions is prolonged, both mental and visual strain will result.

The Indians did their close work—beading, feather trimming, arrow shaping, pottery decoration—in the daytime with sunshine to aid. After sundown, the braves sat about the campfires smoking while the squaws chewed leather, never attempting close eye work without good light.

In our civilization, we often require our keenest vision at night or in rooms never visited by sunshine. Fortunately, science has given us electric light to compensate but few avail themselves of light bulbs sufficiently powerful to approximate dim daylight, let alone sunshine.

Dr. Matthew Luckiesh, director of the Lighting Research Laboratory for the General Electric Company in Cleveland, writes in his excellent book, *Light, Vision and Seeing*,* “. . . human eyes and human beings, operating

* Copyright, 1944, D. Van Nostrand Co.

as human seeing-machines, are products of Nature, and best adapted to Nature's brightness-levels. . . . The proper function and objective of artificial light is to compete with daylight not with darkness." In a study conducted for General Electric he declares, "Your eyes are best fitted to use the sun's energy for seeing." And again, "Nature invites us to work and play under 500, 1000 and 10,000 foot-candles of illumination." Within a modern factory he found the best lighting near the sills of large windows to be but 100 foot-candles of illumination on a sunny day; ten feet from the window, only 20 foot-candles; and on the far wall but one or two foot-candles. Think what that light for an eight-hour day of precision work would be in cloudy weather. No wonder the eyes of the working public are strained.

A study made by a photometer compared the visual effects of different lights on the printed page. Sunshine reflected from a white printed card at noon on a clear day registered 1300 foot-candles; in the outdoor shadow the reflection was reduced to 130 foot-candles. Indoors, a 150-watt reflector spot bulb registered on the card the same as outdoors in the shade on a sunny day, 130 foot-candles. But a 60-watt bulb, which is more than many eye workers are afforded, at the same distance registered only two foot-candles, reflected from the same card. The indirect lamp containing a 300-watt bulb threw from the ceiling down onto the card only one-half foot-candle, despite its power. The fluorescent light registered one-fourth to two foot-candles.

When so few school children and students are afforded

anything distantly approximating daylight for their heavy study work, it is no wonder that glasses are so generally prescribed for those attempting an education. Adequate lighting would greatly reduce this eyestrain and prevent deterioration of sight. The blame is generally put on "too much reading."

Good light is necessary for keen thinking while one reads or studies. The mental strain which results from trying to read poorly lighted print slows down the learning process, for the mind can only assimilate knowledge when it is relaxed.

The eye works by contrast; in print, contrast of light and dark, straight lines and curved, tall lines and short. If the illumination is too weak to throw the print up in bold contrast to the white background, which in dim light seems not white but gray, the mind must struggle to make it out. Sun on the printed page makes the white background very white and the print very black. Poor artificial light reduces this contrast to the minimum.

Worse yet, if the light is so constructed that it does away with shadow, which the fluorescent lights seem to do, it also does away with the sharp contrast between the black print and the white page. Just as it whitens the shadows fluorescent light seems to lighten the print to the point where the mind must struggle to interpret, a frequent cause of eyestrain and brain fag.

One pupil with excellent vision did drafting during the war in a blacked-out defense plant, working all day under shadowless lighting. He came to me completely thwarted. "My eyes simply close on me at the drafting

board," he explained. "I am so drowsy in my car driving home after work that I have to pull up to the curb and doze for a few minutes to avoid sleeping at the wheel." The lad was leading a regular life, took plenty of sleep at night, felt rested in the morning and liked his work. But as soon as he bent over his drafting board again, extreme drowsiness assailed him. Inquiry into his working light disclosed that it was the type of light which killed all contrast by eliminating shadow. At my suggestion, he procured a strong, bright desk light, had no further trouble and, once more, enjoyed comfortable use of his good vision.

Photophobia, as the doctors call it, is fear of light. When sun or headlights hurt the eyes, it is just that: fear induced by the shock of sudden light. This fear tightens muscles, nerves and blood vessels, then the eye, thus tensed, cannot handle the light, and pain or discomfort results.

Eyes need light to do their seeing. They are organs of light. The weaker the eyes, the more light they require. But all eyes, good and bad, resent glare on the page or on objects to be regarded. One of the most prevalent and continuous conditions of glare in our present civilization is the glare on the school blackboards where students must interpret accurately. It may be here that children's eyes first start straining and the habits of "sinful seeing" are formed—habits which can easily blight their young lives and carry the damage over into adult years. As a rule, blackboard work is a mental strain under all conditions. In the first place, it generally consists of hand-

writing, notoriously poor since the Spencerian system went out of vogue. Secondly, what the instructor puts on the board in poor handwriting is always something of importance to the student; therefore, the mental strain is increased. But most disastrously, there is generally but one time each day for each seat in the classroom when the light strikes the writing correctly on a clean blackboard. All the other positions present a glare through which the student must peer and strain. Add to these difficulties the usual shale of soft chalk dust, each particle of which catches and diffuses the light, and most of the students in any classroom are straining to see and interpret misty and mysterious hieroglyphics merging into a shining grayish surface. Is it any wonder that eyestrain begins at grammar school and increases as the work intensifies in quantity and quality, in amount and importance during the student's progression from the grades to the lecture hall? Some improvement in, or substitute for, blackboards should be found.

Eyes need light in which to do their work—exceptionally good light, if we are making artificial demands of them: long hours at the close point or overtime for accurate vision. Parents should carefully plan their children's study life and put sufficient light where it is needed. A 150-watt bulb in a bridge lamp placed about four feet back at the left side and at an angle to prevent glare on the page, should be furnished. The same amount of light should be arranged for office workers. Bridge lamps with strong bulbs for home and bedtime reading should be the rule, not the exception; thus, the steady decrease of

visual acuity in our nation would be halted. The general health of our population is better; if eyes were properly used and treated humanely, vision too would be improved. Eyes like to work but resent strain. Incorrect or inadequate lighting is one of the greatest causes of strain.

Eyes hate sudden shock. It always takes a bit of doing to accustom eyes to varying degrees and types of light. During the war boys returning from long service in the Aleutians found ordinary United States daylight tremendously brilliant. London eyes, used to mists and fogs, find New York daylight too bright. Eyes used to sunshine at sea level, dulled by ocean mist, must accustom themselves to the brilliance of mountain sun in the higher altitudes. If the eyes are given their lessons in sunning, described in Chapter III, these shocks can readily be modified and any type of natural light made acceptable to the eye without resentment or discomfort.

CHAPTER VI

Vision: Applied to Development of Distance

"About seventy-five per cent of children are sufficiently stolid and well balanced to be able to go through school without visual mishap. The rest emerge from the educational ordeal with myopia or some other defect of vision." *

—ALDOUS HUXLEY

PEOPLE with short sight are afraid of distance, afraid mentally even to look at something far away. This mental strain immediately tightens the eye muscles, the obliques, and prevents far vision. It is this fear of the inability to see what the mind says ought to be seen that makes a blockage to the object before the eyes, therefore a blockage to interpretation by the mind.

A clear-thinking artist writes in a recent magazine that to accept vision of an object as is, to see without preconceived ideas of what the object should be, is the basis of good vision. If a person places his gaze without fear, a mental condition, the object takes form and the mind has an opportunity to develop the image registered, which is eye and mind coordination. We must see with our minds, with a mental focus first, the visual focus following. In other words, regardless of the quality of

* From *The Art of Seeing* (Harper & Brothers).

our eyesight, we can learn to see better mentally than physically.

WHAT IS DISTANCE?

Distance is nothing to fear. As early as the year 1700, Bishop George Berkeley wrote of distance that it is simply a direct line from the eye out through space. Distance cannot be seen; therefore, it should not be strained after. Distance is but an act of judgment based on memory of former experience, a comparison by imagination, a reasoning out process from which we can conceive of space and objects out in space. For example, when we are traveling on a ship, if the water is calm and there is no land or other object in sight by which to compare and make our estimates, the horizon will draw in about us very close, the mind having nothing upon which to base its estimate of space and distance. If, however, there is a lighthouse a few miles away, then beyond that a ship, the horizon pushes back farther and farther and we realize how truly far away it is. Our former experience tells us that the lighthouse, looming large, must be close and the ocean liner, appearing very small by contrast, must be far away though we know that an ocean liner is, in reality, much larger than the lighthouse. Distance, we realize, makes the optical illusion. Distance is, then, a mental estimate, not a sense of sight; a problem for the mind, not for the eye resting on an object.

Bishop Berkeley, so many years ago, stated Dr. Bates's principle that vision is an unconscious activity, that we cannot command our eyes or turn them in any certain

way or do anything consciously with them to make them see distance because that is a mental thing, an act of judgment or analysis which must take into consideration all the facts the eye can present, and organize them within the mind.

You must be able to know mentally how different a man would look from the distance of a mile as compared to his appearance at a distance of ten feet. There would be a seeming difference in size, distinctness, faintness, in mass, in detail. So you must use your imagination to decipher or make out that it is a man and not a post, but a man seen at a greater distance.

THE MIND BEHIND THE EYE

The mind behind the normal eye does this unconsciously. It spots an object and guesses over and again what that object might be until, by trial and error, the truth, aided by the memory of things formerly seen, meets the eye. Then the thought comes, "Why of course, it is a man. It couldn't look like anything else; strange that I didn't see him in the first place!"

The mind behind the subnormal eye does not do this; it does not think it could even dare to do so. It has the mistaken feeling that the eye, by itself, must bring all pictures to the mind, which sits back languidly and, unaiding, waits. The nearsighted person has an idea that it would not be seeing but guessing to use the memory or imagination as an aid to vision, that it would be cheating in a way. Instead, he strains his poor eyes to see far away, using muscles to try to force vision. This never

succeeds and, if attempted, cuts down the vision. Instead of sending his poor eyes out alone in hope of identifying an object to bring back to his mind, he should send his mind out and speculate as to what that object looks like, as the normal eye would speculate, and let vision come in. He should give way and accept the image as it presents itself, then the mind can analyze and interpret.

He may think he sees a letter "C" but his mind waits listlessly until his struggling eyes either manage to clear the letter or give it up. He *should* say, "I see something roundish, a "C" or an "O" or a "Q." Then the mind, aided by the eye, would figure it out. It is this struggle to reach for distance that causes short sight. Consequently, if we wish to rid the eyes of their trouble, we must stop the habit of straining, and vision will be there.

There is encouragement in the fact that no strain is a constant thing. There are times when we strain less and vision immediately improves, when we strain more and vision is cut down. Any nearsighted person who occasionally goes without his spectacles has had the experience of the distant view suddenly opening up with a clarity equal to that given by the glasses. This is a glimpse of normal or better than normal sight which will probably be short in duration at first, since the old habit of trying to see immediately sets in. But these transient tastes of the vision enjoyed by the normal eyesight encourage the nearsighted person to develop sufficient relaxation to maintain this normal functioning.

Psychologists agree that fear causes muscular contraction. The two oblique muscles that encircle the eye to

make it long are tightened in the myopic eye. These obliques will loosen and cooperate with the opposing muscles, the recti, only when the eyes and mind are relaxed; hence, good vision consists of good habits of relaxed looking. Good habits can be instilled only by drills in correct use of the eyes so that they will behave normally and without conscious attention. Dr. John Dewey tells us that when routine drill completes the habit of eye-mind coordination until it takes place of itself, it will then be vision.

Myopic eyes have such a fear of distance that they lose interest in seeing far, allowing the world to close in about them. This mental inattention is a bad habit. Such eyes must be taught again to think far, to be interested in the "out there" which is the first step in freeing them of strain.

One nearsighted girl complained, "But I can't see across the room!" I asked, "What can't you see? You see the wall, its height and width. You see the door opening and the windows with their Venetian blinds. Now what else is there? Look and tell me." When commanded to analyze, she described the oil painting on the wall, the subject of the picture, the bookcase, vase and ornaments on top of it, the lamp, the chair, the desk and finally, the desk set, pen, pencil and ruler that lay on the blotter. It was explained to her that it was not her eyes that were at fault but her mind for failing to use the eyes advantageously. This same pupil walked through a familiar room into which had been put a new bright green upholstered furniture set. The old furniture had been brown

and drab. The contrast was quite arresting to anyone accustomed to the room. I asked, "Did you like the new green furniture as you passed?" "Oh, has it come?" she asked in surprise. She had walked right by without noticing the change. The davenport and two massive chairs were large enough for any nearsighted eye to see. This girl simply had not looked. Thus, myopic people go through life, their minds failing to look.

Eyestrain is a very subtle thing; you do not know when or how you permit it or you would refrain. After the strain is made, the damage is done, for eyestrain saps the system of 90 per cent of its nerve force. Even glasses do not relieve the tension or loosen the eye muscles which still hold tightly. The glasses merely do the work which the muscles of accommodation should do. Once that tension is released and that imprisoned vitality is restored for normal use, one's power, endurance and vitality increase tremendously.

MYOPIA

*(Be sure to remove the glasses
before trying any of these drills)*

What nearsighted people must learn in order to see objects in the distance without glasses:

1. First the nearsighted eye must learn to think in terms of shape, for that is the way the normal eye sees—by comparison. Analyze everything you do see as to whether it is large or small, straight or curved, tall or short, thick or thin, wide or narrow. Eyes used to seeing

things beyond ten feet as blobs of blur have the habit of ignoring contours, that is, the sharp edges where the light shears off from the object. They never think to analyze shape, thus aiding the mind in its task of piecing together the meaning.

A good drill is to print the capital letters of the alphabet with your pointer finger in your palm, eyes closed, and tell yourself the general contour of each letter. "A" is an angle, "B," "C," and "D" are curves, "E" is square, "F" tall, etc. You will be surprised how interesting the letters can become.

2. Get into the habit of working visually all over an object for fine points, for detail. Many nearsighted persons remark, "Yes, now that you call my attention to that item I can see it very well, but I didn't notice it before." The reason the eyes "didn't notice it" was because they had not moved all over the object, had not shifted. They fastened on its entirety as a big spot and tried to absorb it as a whole, blot it up, so to speak. Neither eyes nor minds can work that way. They must travel in very rapid succession over every bit of the object, seeing each portion of it at a separate fraction of a second until no portion of it has been missed.

In other words, teach the eyes to shift. A good drill for this is to count series of things very rapidly. Do not try for accuracy; just pretend to count. You will find that the eye skips fewer and fewer of any series as you practice from day to day. Things to count? Scallops in a pattern, repetitions in a design, flowers across the wall-

paper, lines in grained or striped material, books on library shelves, windows in a passing train or streetcar, heads before you in an audience, blackbirds on the telegraph wires.

If remembering faces is your problem, the chances are you never really saw the face. Teach your attention to travel all over the features from eye to eye, brow to brow, nose to mouth to chin and back to the eyes. Compare the eyes for size and expression. Note the balance or unevenness of brows and ears. Study the nose, mouth and chin. See if both sides of the face are the same. You will find fascinating details as you explore what is thus revealed. Once you have seen all of the face, you can remember it. Straining eyes try to blot it up in one stare. They fix on one part. Of course they cannot recall the rest.

3. Teach the mind to be interested in distance and things at a distance. Shortsighted eyes feel so thwarted by objects afar that they do not risk defeat by venturing a look. For this reason, their world draws in about them, closer and closer, until they never even think to look away at what might be seen. Even glasses do not correct this mental habit. The eye must constantly be seeking vision, intensifying the desire to know the answer to the question, "What is it?"

4. Teach the eyes to study the difference in appearance of the same object at the close point and at a distance; that is, to recognize how perspective changes things. The following are drills to interest the eyes in distance.

DRILLS FOR DISTANCE

TENPIN DRILL

In preparation, take the sun or a bright light on the eyes and then palm. While palming, extend your mental focus by the tenpin picture. Arrange, in memory, tenpins in a straight row. Color them carefully, remembering which color you put on each pin. Pick up a ball with which you intend to knock down these pins. Watch the ball leave your hand and roll far away across the floor to hit the first pin. Repeat until you have knocked down all ten.

IDENTIFICATION DRILL

1. Sit at the end of a long well-lighted room in order to observe its contents. Begin by looking at the object nearest you on either side, turning your head to look first at the object on one side, then the other. Close your eyes and get a good picture in your mind as to just how those two objects look.

2. Now take the two objects a bit beyond the first two, looking carefully from one to the other as you turn your head from side to side. Close your eyes and turn your head toward what you saw on one side, then what you saw on the other.

3. Remembering what you saw, open your eyes, see it again and move on to something farther away on each side.

4. Keep creeping farther and farther out, object by object, confining your interest to what you are regarding,

shifting your attention all over the objects, analyzing their shapes, and getting as many details as possible.

5. Soon, you may reach objects on both sides of the room so far away that you cannot make them out. Experiment with these two unknowns, visiting with first one, then the other. Remember to close often, to rest, and breathe deeply and frequently. Do not try; just invite vision; let the eyes volunteer anything they wish. Speculate as the normal eye would surmise. One or the other object may flash either into consciousness or into vision. Whichever way it comes, accept it and it will become vision of a higher degree.

6. If nothing happens, walk over and examine the objects at close range. Why did you fail to see them? Did you analyze their size and shape incorrectly from the distance? Did you fail to travel all over them for detail? How different do the objects look close from the way they did at a distance?

7. Now return to your chair, palm your eyes and remember the object as you saw it when you walked up very close. Take a big breath, exhale as you open your eyes and you may surprise a flash of clear vision.

Do not work this way too long at a time. Rather, work a little each day. Things that were a mystery the first day will be easy next time.

MOTION-PICTURE DRILL

Motion pictures offer good practice in extending your vision into the distance. View the screen without your

glasses. Sit close enough so that you do not strain, as close as the first or second row center. Remember to blink and breathe often, and to travel all over the screen for detail. Close the eyes briefly from time to time or glance off into the black darkness to give them the rest afforded by contrast between light and dark. If it is a picture with many outdoor scenes, take advantage of every chance to look deep into the background, the distance which the picture has to offer. Contrary to popular belief, motion pictures are good for the eyes and can be used to build up nearsighted vision. Because they are in motion, it is impossible to hold the gaze still in a stare; hence, motion pictures make the eyes shift. If you start by sitting in the first row when you first view the show without glasses, you will find that you can increase your distance from the screen as the weeks go by. Sooner than you would expect you will be able to sit in the first row of the balcony and see the picture just as well. The downward glance of the eyes is restful and the angle easier on the neck. Then, your farsighted friend will once more be willing to sit with you.

Remember our rule about the use of your eyes. "Easy does it!" and do not let your eyes get tired. If the program includes a double feature, you will lack the endurance, at first, that is necessary to spend a whole evening without the glasses. You have been dependent on your crutches too long. You must then do one of two things, either palm or put on your spectacles. But as the eyes grow more accustomed to working without their aids.

you will be able to manage longer and longer periods without tiring. If possible, hold your head so that you view the screen with a downward glance; look softly and remember to breathe!

An excellent practice is to go alone and see an interesting motion picture, then sit through it again, palming, and visualize the whole picture as you listen. Your vision will be definitely more vivid when you take down your palms.

BOWLING DRILL

For focusing and vision stretching, bowling is unequaled. Modern bowling alleys are well lighted and well ventilated. If the player keeps his eye on the ball as he swings it back before releasing, then looks quickly from ball to the pins, in other words, if he swings the ball once to aim, then watches it when he throws it, the aim will be improved and the eyes will follow the ball in motion all the way to the pins.

It is excellent practice for the shortsighted eyes to shift across the remaining pins and estimate how many are still standing. As the game progresses, the estimate will become more accurate.

Even score keeping can be made beneficial. In some modern bowling alleys the score, written in pencil at the desk, flashes simultaneously on a screen above at a distance. Comparing the handwriting at the desk with the same thing shining on the screen at the distance is

wonderful vision training and will bring flash after flash to nearsighted eyes.

TELEPHONE-POLE DRILL

Palm and take the sun or light on the eyes before and after doing this drill.

1. Stand where you can look down the street at a long row of telephone poles. With your attention on the first pole, pointing your nose where you are looking, slide your vision as you raise your head up the left edge of the pole to its very top, then all the way down the right edge of the pole to the ground. Notice every detail you can find: knotholes or cracks in the part near the ground, bars and braces higher, with glass insulators on the ends of the crossbars.

2. Count the number of wires and slide away on the wires to the next pole.

3. Thoughtfully and slowly, repeat your sliding down the second pole as carefully as you did the first.

4. Compare its appearance with the first; get the feeling of it being farther away, the feeling of distance.

5. Close and rest and breathe.

6. When you open, slide from the first pole to the second and travel back and forth on the wires several times.

7. Slide on to the third pole, and repeat.

Day by day with this drill you will get clearer and more detailed images and be able to do better on the seventh and eighth poles than you did, in the beginning, on the first and second.

PLAYING-CARD DRILL

This drill is designed to make the eyes accept the appearance of familiar things in the distance. Palm and take sun or light on the eyes before and after doing it.

1. Take two decks of cards and sort out the suit of spades in each deck. Stand one suit up in a row arranged in sequence against the wall, on the floor or on a table so that they may be viewed from afar.

2. Turn a good light on the cards and place your chair at a sufficient distance so that you cannot quite clear the spots on the playing cards.

3. With the other suit of spades in your hand, take the ace and examine it carefully, *all over it*, and quite close to your nose, then hold it at arm's length and compare the close with the far vision several times.

4. Then shut your eyes gently and remember the ace at arm's length, take a big breath, open and look as you exhale at the duplicate ace in the distance. Let your attention travel all over it there as you did at arm's length.

5. If you are too far away to bring out the distant picture after several trials, move a little closer. Do not let yourself strain!

6. As you proceed through the suit—two spots, three, four, etc.—you may be able to push your chair a bit back again, and clear the cards just as well. *Warning:* Invite vision; do not stare or strain. Vision is an impulse. You cannot force. If you loosen and exhale, it will come. Be sure you do not do any tricks with your lids or brows to

try to clear things. That would be cheating, trick vision, which is very bad for the eyes.

7. When a card clears, go all over it quickly. Staring at it will kill your flash. Shift by counting every spot and notice the four corners. This will intensify your flash.

8. When you clear one card, shift quickly all the way down the row. The flash may last part way and eventually all the way.

As you improve in your manner of using your eyes and are rewarded with better vision, you can vary the drill. Match other suits (the red will be harder) or shuffle your suit and find the matching card in the distance. Perhaps, shuffle both suits and match cards. Finally, mix the suits and use from the ace to the five-spot of all four suits. Do not go so far from the cards at any time that you make effort or strain. If you find yourself doing so, move closer. Remember, the purpose of this drill is to compare the appearance of the same thing close and far—a mental activity.

Originate new drill games to teach yourself:

1. to think of shapes,
2. to travel all over objects,
3. to become interested in distance,
4. to analyze perspective.

Remember, boredom defeats vision because it kills interest. All day be interested in the world around you. Extend your interest *out* into your world.

Nearsighted eyes miss many things within their visual

reach because they fail to look at them. Think to *look!* Then analyze the thing you look at; get your mind behind your vision. See with interest and attention. This is the opposite of staring and day dreaming.

CALENDAR DRILLS

Preparation: Obtain a large wall calendar that shows the previous month and the coming month under the current month. Mount the calendar on a coat hanger so that you may hang it in good light at a proper distance. This drill was originated by Mr. Huxley as a method for home practice. It brings excellent results since it makes the eyes shift in rapid motion first at the near point, then at the distance. Again, it makes the eyes centralize at the close point; therefore, centralize far away. It is fun. The mind, interested, stops laboring and is freed of mental strain; hence, the eyes are relieved of visual strain.

Learn to juggle two rubber balls or two other round objects if balls are not available. Take one ball in each hand. Throw the ball up from the right hand and catch it in the left; while the first ball is in the air, the left hand quickly transfers its ball to the right and is ready to catch the descending ball in an open palm. This sounds involved but a little practice will make you quite dexterous as a juggler. The tendency, at first, may be to gaze upward, waiting for the ball. This would be a stare. Be sure you keep your attention and vision on the ball all the way as it rises and descends. Follow it with your nose as it rises from one hand and falls into the other and you will never miss. Now you are a proficient juggler.

Drill A. Palm and take the light or sun on your eyes first. Then stand at an easy distance from the calendar and face it directly (head on). Follow the ball with the vision by pointing your nose at the ball as you throw it up one complete trip from the right hand through the air to the waiting left hand, then glance quickly at numeral "1" on the calendar, looking at the white background on one side, then on the other. Close eyes and swing and breathe. Juggle twice and look at the background on either side of figure "2." Close eyes and swing and breathe. Juggle three times and follow same procedure with figure "3," increasing the number of jugglings as you read each successively higher number. Great care must be taken to avoid the temptation of looking from the ball to the number before watching the ball complete its journey from one hand to the other. The numbers may begin to clear as you play. If so, step back a foot. As the days progress you may be able to move farther away. To strengthen a weak eye, cover the stronger eye with a patch while doing this drill. But be sure to keep the eye open beneath the patch.

Keep the spirit of play as you juggle the balls and look back and forth to the calendar.

Drill B. (Palm and take the light or sun on your eyes)

For this drill, you may need to stand closer to the calendar since you must be able to see the small numbers in the two lower calendar months. Experiment with your distance, and approach to a position from which you can read them without strain though they do not need to appear completely clear.

Now juggle once, look at the big numeral "1" and then quickly to the small numeral "1" on the lower left calendar, then shift quickly to "1" on the lower right calendar. Close and swing and breathe.

Juggle twice to the big "2" and look to the small "2" to the left, then quickly to the right "2." Close and swing and breathe.

Close and swing after each numeral and stop and palm before you grow weary.

Drill C. The eyeball lengthens like the camera for the closeup. This, the nearsighted eye does well. It must learn to flatten; that is, to shorten, in axis, like the camera for the distant view. The following drill is planned to teach cooperation between the flattening and lengthening muscles so that the nearsighted eyeball may change in shape from long to flat and thus see things far away.

1. Find a small hand calendar that matches, in position, the days of the month on the large calendar. In preparation, palm and sun or take the light on the closed eyes if there is no sun. Seat yourself a little beyond clearing distance of the large numerals on the big calendar.

2. Hold the small calendar a few inches before the face and move your nose to slide your gaze up one side of the numeral "1" and down the other, then quickly look to the distant numeral "1" and do the same.

3. Close and swing and breathe. Do not be concerned if the distant numeral does not clear up right away. Do not insist on it; do not try. The vision will improve as you proceed through the sequence of numbers.

4. Now look at the white on either side of numeral "2" on your small hand calendar; do the same for the "2" at the distance.

5. Close and swing and breathe. Watch that you do not hold your breath while looking. Continue thus with each number and you will find the eyes getting the feeling of looking far and liking it. This, they will demonstrate with clearer vision.

Remember, in all our drills, it is never time wasted to rest as the vision will be so much improved thereby that the eye can accomplish more.

The foregoing suggestions are just a starter for myopic eyes. It is difficult for a nearsighted person to work alone. If he could enlist the aid of a sympathetic friend or relative who would read the directions and check him as to whether he was carrying them out, it would be a great aid toward the attainment of normal vision.

GLASSES

Pupils with nearsighted vision often ask, "Should I take my glasses off immediately and never put them on again?" The answer is No. Do not throw away your glasses until your vision is sufficient to see without them. You would not walk up to a cripple who wished walking lessons and seize or throw away his crutch. You would first teach him to use his limbs and build his endurance to the point where he could stand and walk without aid. Then he would no longer feel the need of the crutch. So it is with glasses; as the vision builds, there will be frequent occasions when you will not feel the need of your

glasses. We must wean the eyes from their crutches gradually as the vision increases. As your vision builds up and the glasses you are wearing feel too powerful, you may have to consult your doctor as to the advisability of a weaker prescription.

Nearsighted eyes see well at the close point. It is no task for such eyes to read even small print if the book is held close enough. Reading at the close point with myopic lenses, ground for distant vision, is comparable to reading a book with opera glasses. Try reading with the naked eye instead. As the vision builds for distance, you will find that you gradually move the book to a more normally distant position.

WARNING: Do not risk driving your automobile without your glasses until you have passed the state driver's test without glasses. Remember, until you have attained visual acuity, the eyes are not only dull of perception but sluggish of movement. In traffic, things happen in a split second. We do not remove glasses for driving. We build the vision. The state removes the restriction when you develop sufficient vision to pass the test.

While nearsighted eyes are strengthening, they can refer to the strong glasses for something beyond reach just as a sea captain picks up his binoculars for vision beyond the power of normal eyes. Use judgment; take no chances and do not strain. There are many places and conditions where there is no mental pressure and a nearsighted eye can safely use its own power, as, for example, dressing in the morning, eating breakfast, riding as a passenger, etc. This builds visual acuity. Be on the alert for all these opportunities. The eye loves its freedom.

CHAPTER VII

Vision: Applied to Development of Sight at the Close Point

"What can it profit a man to gain the whole world and to come to his property with a gastric ulcer . . . and bifocals?" *

—JOHN STEINBECK

THESE days, most persons around the age of forty have discovered that when reading they need either longer arms with which to hold the book or better vision to clear the print. Eyes that have trouble in reading may be farsighted and astigmatic or may have what the doctors call "bifocal" or "old age sight." This is blamed on hardening of the lens. Such eyes stare along the line of print. They do not know how to shift as the normal eye shifts but they can learn. They can rejuvenate their reading vision by learning to read with eyes in a relaxed condition. Tension, not age, spoils vision at the near point. Most of us know elderly people who have maintained their ability to read without glasses. Travelers through Belgium, before the war, reported that aged women in the convents, makers of the famous Brussels lace who had spent their entire lives at the work, did not wear glasses though many were eighty years of age or

* From *Cannery Row* (The Viking Press, Inc.).

over. They did work under excellent lighting conditions, daylight rather than artificial however, with no mental strain, no drive or compulsion to tense their nerves—wonderful examples of what the eyes can accomplish when relaxation is maintained during activity.

Tension is the cause of failure to read, in this case, tension of the four recti muscles that flatten the eye. When they are loosened by the relaxed mind, the two opposing muscles, the obliques, are able to perform their task of lengthening the eyeball. This makes it possible to read easily, comfortably and without strain. The lens remains the same, whether hard or soft being apparently irrelevant, for reading is possible in either case. If relaxation is practiced earnestly and persistently, good near vision, regardless of age, can become a permanent ability. In more technical terms, eyes that have lost their ability to accommodate should be re-educated to do so.

FIVE RESOLUTIONS

(Excellent for anyone with so-called "old age sight")

1. Resolve to breathe more deeply and more frequently while you are using your eyes at close work. "Breathe as you look!"
2. Keep the eyeballs feeling soft while you read by loosening the lid and reducing orbit pressure above them, thus freeing them of constriction (see Chapter IX). Close the eyes often to check for softness and restore that feeling if you have lost it.
3. Blink often for rest and lubrication. This will keep

the eyes from getting "sticks" or "grits" in them while you are reading.

4. Whenever you look far away during the day, give a quick compensating look at something close, if only your fingernail or wristwatch.

5. Accustom your eyes to etching or edging objects you look at. This will improve your powers of observation by instilling the habit of shifting at the distance where you see readily. The result will be that the eyes will then apply the habit to the near or more difficult point.

The first step in re-education is to eliminate the mental strain that tightens eyes. Do this by restoring relaxation to the mind as suggested in Chapter IV. Such eyes must have their mental stare as well as their visual stare broken because the owners of such eyes both think and read in a series of stares or spottings. We must streamline the mind as well as the vision and read with the mind as well as with the eyes. Even those who practice the orthodox methods have come to the realization and are now teaching that "seeing is more than visual acuity."

The next step is to get the eyes relaxed. Do all the relaxation drills in Chapter IX, the morning drills especially, for it is such eyes that need to be loosened and opened, that need the weight of heavy drooping lids and brows uplifted from the top of the eyeball.

Accent particularly the sunning and palming. Strangely, people with eyes that need it most resent both sunshine and the time required to develop relaxation by

palming. But persistence, as directed, will bring acceptance of brightness and enjoyment of the calm which results from successful palming.

Suggestion for aging eyes: Do the elephant swing while taking your light or sun bath. This bodily activity soothes nerves and makes palming more welcome. And do not let palming be boresome or, worse yet, do not hold yourself down by sheer will as you fret over the many things you might be accomplishing instead of taking a ten-minute rest period. Remember, it is actually a gain in time to take a bit of relaxation. After a successful palming, your thought will be better organized, action will become more efficient and less time will be required to accomplish your task. In other words, you will not be "running around in circles," mentally or actually. Turn the radio on to some sweet music or interesting talk or play, keeping the palms over loosely closed eyes in such a position that they make a soft warm dark cup over each eye. Prop your elbows with a cushion so that your arms will not get tired. Keep your mind easy, interested and happy. Indulge in a deep sigh. Resolve to enjoy your moment of rest.

Now you are ready to use your eyes. Bear in mind six things:

1. You are not going to *try* to see any print, for the harder you try the more blurred or painful or impossible it will become.
2. You will not resort to any artificial strategies with lids or brows to clear the print. Such tricks of pressure or

distortion are bad for the physical eye and defeat improvement and thus prevent permanently good vision.

3. Bear in mind that memory of imperfect vision or a blur will make the vision still more imperfect so do not let your mind indulge in memories of astigmatic aberrations. Instead, close your eyes and remember something formerly seen that was clear and sharply defined. Incline your mind to the memory of perfect sight.

4. Take the sun or light and palm frequently during your lesson. Try to rest before you are weary. You know the old saying about "prevention being better than cure." Say instead, "If you rest before you are tired, you will never become exhausted."

5. Provide yourself the best light available, if possible, sunshine on the page of print, good daylight or its equivalent, a strong direct artificial light. (See Chapter V). If you use sun on the page, tip the book at such an angle that you do not get a glare.

6. Use the mental drills frequently between paragraphs while reading. They are good mental relaxers and will loosen the tense eye muscles.

An excellent preparation for your reading lesson after sunning and palming is the Calendar Drill, described in Chapter VI. When you work with the small calendar (Drill C), looking from the small numbers to the large ones in the distance, don't use too small a calendar at first, but one that you can readily see. If necessary you may hold the small calendar at arm's length. You can coax the small calendar closer to your eyes as the days go

by and as the close vision improves. Look at number "1" in your hand and at the corresponding one afar, then back again to the same number in your hand. This gives the flattened eyeball two opportunities to lengthen for vision at the near point for every one of the easy looks away. Be sure to close and swing and breathe between every round trip of looking. Rest your eyes on the numbers easily each time; do not snap at them or demand clarity. Accept what comes at first, clearing up your mental picture of how it *should* look as you close to rest.

Reading consists of interpreting black marks on white ground or vice versa; that is, the contrast between black and white. So, first of all, let us teach the eyes to look at and notice whiteness. Remove Card No. 1 which is found in the back of this book and turn it to the reverse or white side. Hold this blank white card in sunshine or good light before your face and start sweeping your nose and vision from one edge across the plain surface to the other edge, back and forth. Did you automatically hold the card far away? Try bringing it in, closer and closer, as you continue to sweep across. This will not bother you, even very close, because you are looking only at white; hence, there is no demand made upon the eyes or the mind. But the eyeball is lengthened, just the same, to meet the closeness of the card.

Do not try; do not strain; just stroke your vision across the card. Now you have the feeling of whiteness and know what it is like. Close and remember it, continuing to sweep across the card in memory.

Learn to Ride Tracks: When you open your eyes, turn

to the opposite side "Principles of Eye Training." Instead of reading, point your nose and sweep your vision across the white between the lines of the tiny paragraphs of microscopic print at the foot of the card. Do this from wide margin to wide margin; do not try, just slide, alternately open and close as you did on the blank card. Finally, the white threads between the tiny lines will shine through like little tracks. You may have to hold the print quite far away at first. Let comfort be your guide. Never force vision. The card will come closer of itself as your reading vision develops. The print should clear itself more easily the further down the card you go. Contrary to popular belief, it requires less effort to read fine print than large; there is not so much space to be covered; it is not so tiring. Remember to breathe, to blink lightly and often. Be sure to keep the weight of your heavy hanging brows and leaden lids off your eyes.

Now travel the white tracks between paragraphs 9, 10 and 11, alternating sliding across with open and closed swings. Remember to breathe. Do not try to read. This is not a reading drill but a means of loosening tight muscles. As the spaces in each group of printed lines whiten, move your attention up to the wider groups above. Continue to alternate open and closed swings, and breathe. When you arrive at the widest spaces, you may be sufficiently relaxed to read. Do the track-riding slowly, thoughtfully, gently. Keep your mind on the background whiteness, not on the print. It requires so little effort to regard a plain surface that refractive error lessens and even leaves while doing so.

When the reading vision turns on, hold the card comfortably far, continue a slight head motion slowly from side to side but let the eyes go as fast as they wish—the greater the reading speed the less the effort because the further you are from the stare habit. Whether tired or not, close eyes at the end of every paragraph or oftener if you feel the need. Rest is never time wasted. Close and rest and swing. Remember what you just saw. Breathe and return to those words, then you can proceed. Memory brings vision; a big breath releases tension.

Check on your vision habits. Did your lids and brows press down to help you clarify the print? Tut, tut! Trick vision! Keep your eyes wide open. How wide? Not starey wide. Tip your nose high in the air and sweep across the ceiling with your vision from wall to wall. Now you know “how wide is wide.” Just that freely wide, read the top line again.

Notice that there is a difference between a blink and a closing. Look at the first word by numeral “1” and make a light blink. Your eyes remain on focus; the lid curtain simply lowered and lifted. Now close gently and, with a breath, return to the same word. You will feel your eyes return from far places back to focus, a more complete rest. So remember to blink often and close at least at the end of every good-sized paragraph.

If you are not perfectly comfortable doing these simple drills and resting often, do them with one eye at a time until you grow stronger and can put the two eyes together. Before putting two eyes together, sun and palm and do the “metal disk” swing while you rest.

These drills done gently, thoughtfully, daily, are bound to relax your eyes. When relaxation sets in, vision will have a chance to improve.

The Cut-Outs: Many who fail to read do not know the shapes of the letters from which words are made; it is always difficult to see unfamiliar things. Try this experiment before the next drill. Take pencil and paper and, without referring to the printed page, write the lower case alphabet, not handwriting, not capitals, but the little letters in the words found throughout the page. If you do not cheat, ten to one you will mix capitals and handwriting in your alphabet or you will not be able to remember the shapes of certain letters. Right? How about "b," "q," "r," "g," "d," "t"—did you get them right? In other words, you have for years been reading words composed of unfamiliar parts. Now select Card No. 2 from the section at the back of the book and study the lower case letters. Do it this way, an indelible way which makes them unforgettable.

Look at the white cutout or hollow shining through "c." Close and remember the shape of the white. Look at it again and move on to "a." See the two white shapes or cutouts shining through "a." Close and remember; open and see them again and move on to "i." See the white up the left side, under the dot, and on the right side of "i." Close, think and see it again. Continue until you have gone as far down the page as your present vision will allow. Now you will more readily read words on Card No. 1. Try paragraph 1 again. Clearer?

Do your eyeballs refuse to lengthen and accept the white page close? Give them this drill:

THE CROWDING DRILL

1. Cover one eye with one palm but loosely so that it may open with its partner. Crinkle the palm of the other hand as the fortune teller would do to read the lines.

2. Hold the palm at arm's length and sweep the vision across, back and forth, over all the little lines that appear.

3. Close your eyes, continue to sweep and think of the lines your vision crossed.

4. Take a breath, bring the hand closer, open and sweep again.

5. Repeat: sweeping, closing, remembering and crowding the palm closer until it is very near your nose. You will still be able to see some of the lines and with no effort because you have gradually lengthened the eyeball.

6. Now repeat this drill with the other palm and the other eye.

7. Next, rest by taking the sun or light and by palming.

8. Then repeat the same thing with both eyes uncovered. You should be able to read better immediately. *Caution:* Do not attempt to crowd the palm as close to your nose now that you are using both eyes as you did when you were practicing the drill with each eye separately or you may feel discomfort.

When you have successfully accomplished the foregoing drill, promote yourself to the Fingerprint Drill.

FINGERPRINT DRILL

1. Cover one eye with the palm of the hand. Hold the tip of the index finger at arm's length before you so that you may search all over it (the shift) for the tiny whorls that interest the fingerprint experts.

2. Close, remember the details you have just noted and, while closed, bring the tip of the finger one inch closer.

3. With a big breath, languidly open on the fingertip again, gently searching for any tiny marks that might show up.

4. Repeat, inching in on your eye, using no force or compulsion, just inviting the vision to come.

This drill gently lengthens the eyeball by loosening the recti muscles and causing the oblique muscles to contract gradually and squeeze the eyeball long for better vision at the close point. It is easy to do because there is nothing to interpret; therefore, you do not try, hence make no mental strain. Sun shining on the fingertip will be an aid. This simple drill can be done at any time, anywhere, without attracting attention, and will gradually loosen the tension about the eyeball.

THE TOOTHPICK DRILL

This drill is for the purpose of centralization, to make the eye see best for a fraction of a second, one tiny point. The smaller the point seen the more perfect the vision. Do not try to clear the points; let them clear themselves

as they may when you swing toward first one, then the other.

1. Find yourself two toothpicks, colored ones preferred. Select a red one and a green one. Hold the red one upright in the left hand, the green one upright in the right hand, the two hands about twenty-four inches apart.

2. Now close your eyes and start your head swing gently from side to side, directing your nose and mental focus to the tip of one toothpick, then to the tip of the other.

3. Now open your eyes and see the tip of one, then the tip of the other, for four swings.

4. Close again, continuing the swing, and remember what you saw, at the same time bringing the toothpicks closer to each other. If they are blurred or fuzzy or doubled, do not pay any attention to the aberration. You *know* how sharp and clear the points really are, so clear them in your memory while closed each time; when you reopen, they may be more definite.

Be sure you get the feeling of leaving one tiny point and going to the other. Each time you close for four swings, bring the points an inch closer until, finally, the two tips are but their own width apart. Now, can you still direct your visual and mental focus first to one, then to the other? If you can, that will be true centralization and if you pick up a book, the chances are that the print will be clearer.

In all these drills, open your consciousness to the feeling or sensation of relaxation because relaxation is a sen-

sation. In close eye work, it is never time lost to close and loosen for a moment. After these crowding drills, you may be able to read farther on Card No. 1 than you ever did or quite a bit of book type.

THE ART-OF-READING DRILL

Prepare your eyes for their lesson with sun (or light), swinging and palming.

When your reading vision has reached the point that you can read paragraphs 4 and 5 on Card No. 1, you can begin to practice this drill.

On Card No. 3, you will find an article in good readable type, "The Art of Reading," based on the teachings of William H. Bates, M.D. On Card No. 4, though you may not be able to read it, is the same article in microscopic print. The smaller the print, the less effort required to see it. This you can prove to yourself and to your eyes.

Play around with the two cards as you hold them side by side in good light, preferably sunshine.

1. "Frame" the large block of print, pointing your nose and sliding your vision up one margin, across the top, down the other margin and across the base. Do this several times, keeping strictly on the white that surrounds the printed matter.

2. Repeat this same framing process around the microscopic type until it is well framed in white.

3. Now that the eyes have the feeling of white in the background, let your attention travel up and down the middle of the larger block of print and you will find ir-

regular white streaks shaping—rivulets or paths of white background shining through. Play with them for a moment, shifting your attention here and there without effort.

4. Now do the same thing on the fine print on the other card. The same rivulets or paths of white in miniature will shine through this print, fine as it is.

5. Next, with a short slow head swing that lets you point your nose at one margin then at the other, slide your vision on the white beneath the title of the larger print. You will be able to count the words.

6. Change immediately to the micro and count the words in the title.

7. Slide back to the large print which will clear. Read the title.

8. Then repeat the words as you slide back and forth under the micro type. They may take shape or even flash forth for you. If they do not, have no concern. Sooner or later, they will.

9. Take the first phrase of the big print card, "When reading you should look," and say the words as if reading them when you turn to the same phrase in the micro. Do not risk boredom by staying too long on one phrase; try the next and the next, and so on. It may help you to know your place if you put a white card as a "liner" under the line of words on the micro as you play with them. And really play with them! Do not be determined, do not demand. Knowing what the words are from the larger type, just pretend you are reading them. *Let. In-*

vite them to come. Some day, when you least expect it, they will flash as vividly as huge type. When this happens, your eyes will feel wonderful and there will be a relaxation in all the nerves of your body that you never felt before.

SHIFTING DRILL. *The Confetti Hunt*

Prepare the eyes as for a reading lesson with sunlight and palming.

1. Place a sheet of white paper in a good light on a desk or table before you.

2. Scatter a teaspoonful of gaily colored confetti over the paper.

3. With a gentle head swing, let your gaze travel slowly from one edge of the paper across the confetti to the other edge. Since you are not trying to see anything, this starts the eyes shifting with ease.

4. Now close the eyes and visualize red: the red in our flag, the red of poppies, firecracker red, etc.

5. Open the eyes and, turning the head gently from side to side, locate and pick up all the bits of red paper.

6. Close the eyes and rest for four or five swings. This time, think of green: the green of grass, the green of lettuce, the green of shamrocks.

7. Now open the eyes and find all the bits of green.

This drill can be done with each color. When hunting a certain color, pay no attention to anything else. This will bring a mental focus. A sharply focused mind is the first step toward centralizing vision. Make a game of the

color search and do not keep at it until you are weary or bored. As you search, lean closer to the confetti. This coaxes the eyes to accommodate at the near point. When you have picked up all you want, palm the eyes to rest them, then take your book. The reading will speed along much faster and with half the effort. The print will seem blacker and clearer.

DRILL FOR PRESBYOPES

When presbyopic eyes (those that have trouble reading) can clear and read microscopic print at the close point, they are accomplishing all that the normal eye can do. Hence, micro type is a good yardstick of progress made. In preparation for the following drill, review and memorize the shapes of the lower-case letters. Print the entire lower-case alphabet, then compare and correct it with the letters on Card No. 2 so that you know exactly how each lower-case letter looks and will not mix in capitals or handwritten letters. You may be surprised how unfamiliar you are with the shapes of these letters you have been reading daily on the printed page.

1. When you have learned to read paragraphs 10 and 11 on Card No. 1 but cannot read the micro type beneath them, use a magnifying glass or have someone with better vision dictate to you the contents of the microscopic paragraph. Write it carefully in longhand with pencil and large enough to be read easily. Copy it line for line so your handwritten paragraph is arranged to match exactly the printed version.

2. Prepare your eyes for reading with sunning and palming, and have good light or sunshine on the card.

3. Read the first four or five words of your handwritten paragraph. Do not attempt a whole sentence as you will find it easier to visualize a short phrase. The easiest way is best.

4. Close your eyes and mentally change those four or five words of the handwritten phrase into print, remembering carefully the shape of each tiny printed letter as you "translate" handwriting into book type.

5. Draw a deep breath and, on the exhalation, open the eyes on the first phrase of the micro type from which you made your handwritten copy. Read the words you printed mentally. Say the words whether you see them or not. The print may flash out. If it does not, do not be concerned.

6. Repeat the same procedure with the next phrase, being careful to remember or visualize the shape of each letter as you change it from longhand into print.

7. By the time you have done a half dozen phrases, your memory of the printed words will perfect itself and when you sweep your vision across them, they may begin to volunteer in tiny flashes.

8. Palm to rest your eyes at the end of every sentence. Take sun or bright light after every palming, then try a new phrase.

9. If you are not successful the first day you attempt this drill, do not be discouraged. Try it again the follow-

ing week, improving your vision in the meantime by the many other drills in relaxation.

Once you are successful in reading the microscopic type, it means that you have learned to relax your eyes completely and the reading of normal print will no longer be a problem. If you will read one paragraph of micro type each day, the eyes will be ready for their tasks at the near point and you will maintain their reading power for normal print.

MENTAL PICTURE

Hold in the fingers of both hands a soft rubber ball. Squeeze it flat from front to back. Let it swell out round again. Then squeeze it around the middle so that it bulges long from front to back. Let it come round again. Watch the ball change shape from a lozenge to an egg-shape. Do this repeatedly, rhythmically, saying aloud,

“Squeeze it flat from front to back,
let it come round again,
Squeeze it long from front to back,
let it come round again.”

Now you are thinking shape as the ball changes under pressure. You know the feeling in the fingers as they press the soft rubber, first one way and then the other.

Next, lay the ball aside. Let your hands fall loosely, palms up, into your lap. With eyes closed, repeat this drill, thinking to yourself, and repeating,

“Squeeze it flat from front to back,
let it come round again,
Squeeze it long from front to back,
let it come round again.”

All the while remember the feeling of the soft rubber ball and the shape it takes long, the shape it takes flat.

When you open your eyes after following this memory drill, they will feel loose and easy, and the vision should be clear, at both the near and far point.

MORE PRESBYOPIC DRILLS

Some persons, when they first attempt to read without glasses in improving their vision, complain that they can see the words all right but that each word and sometimes each letter is doubled, tripled or further multiplied. One woman with such eyes said when she looked up at the moon, “All twelve of them are bright!” This multiple vision of single objects means but one thing: effort resulting in strain. Force is put behind the look. Now it is so much easier to look without effort. The following drill teaches the eyes how, and gives them the feeling of relaxed vision.

THE “look” DRILL

1. Prepare your eyes with 100 elephant swings as described on page 26, then sit down with Card No. 5 from the section in the back of the book.
2. Palm your eyes, remembering something pleasant. Palm long enough to get a soft easy feeling, deep within

the eyes, and until the eyelids loosen, the weight of the brows lightens, and the eyes themselves feel gentle. Throughout this drill, remember to breathe.

3. Now lower your hands, observe the top word, "l o o k," then close your eyes and remember that word carefully with its two little "o's" between the "l" and "k." With the eyes still closed, slide your attention mentally from the "l" to the "k." The two "o's" slip past. Let the two "o's" slip by, remembering the two white centers as they pass.

4. Open your eyes and actually slide from the "l" to the "k" on the top of the drill card. For a second, the word should clear and there should be but one image.

5. Close your eyes and swing your head from side to side, breathing regularly. Now open and look, alternately in rapid succession, at the round white background shining through one "o," then the other. Make these easy glances with free eyes and loose lids, shifting from one "o" to the other six times, then rest and swing. Repeat six times.

6. Close your eyes and glance *mentally* from the white of one "o" to that of the other, back and forth. A slight head motion, as if pointing your nose from one "o" to the other, will aid your memory of the round whiteness within.

7. Repeat this again with eyes open, being careful to avoid the trick vision of narrowed lids or of too fast blinking which is the same thing.

8. When you get a flash of good vision on the top

word, "look," drop to the second and repeat with *closed* eyes, then with *open* eyes until it clears. Then drop to the third word, etc.

9. When you have cleared several of the words, drop immediately to the print at the base of the card. You will read it more easily. If not, palm to rest your eyes and practice again.

Put yourself through this drill, in good light, twice each day.

DRILL NO. 2

If you wish to vary the "look" Drill, try the following:

1. With closed eyes, think of the largest word "look." *Mentally* put a small black dot on the left side of the first little "o." Chase that dot all around the "o" as if it were sliding on a little track.

2. Open the eyes and imagine you are doing the same thing with vision, sliding the dot all around the "o."

3. Repeat on the second "o" with eyes closed, then open. If you do it easily, the print will clear.

4. Repeat this drill on the "o's" of each of the smaller words, going down the list as far as you comfortably can.

DRILL NO. 3

This is a more difficult mental drill but most helpful if you become proficient; hence, it is well worth practicing.

1. Cover the "look" card with blank white paper in order that only the top word "look" will show.

2. Memorize each letter of this largest word, "look." Close your eyes and remember the word carefully, noting the size, shape, spacing, and position on the card, and remembering particularly the whiteness inside the two round "o's."

3. Open your eyes, look at the blank white space below and see if you can remember those letters as vividly as to size, shape and spacing with the eyes open as you did with the eyes closed. If not, repeat and improve your memory.

4. When you feel that you have succeeded with the largest "look," work with the next size in the same way.

The purpose of this drill is to train the memory to be as good with the eyes open as it is with the eyes closed. When you improve your memory, your vision will improve and the print at the bottom of the card will be clearer.

MAKING A MENTAL PICTURE

Here is an example of a good mental picture you can make while palming.

In Arizona is a large underground river, tapped accidentally by a mining company when they sank their shaft.

Imagine that you are a guest of the company. A guide takes you to the car that descends into the mine. You grasp the rail. The machine starts. Slowly the car begins to descend. There are no electric lights as you move gently down and down. The daylight fades and darkness

deepens, growing blacker and blacker; this is your first experience with total darkness. You hear the grating of the car as it slides deeper and deeper into the depths. The smell of damp earth is about you. Finally, with a thud, the elevator grinds on the gravel at the bottom of the shaft and the car stands still.

Stepping out, you are led through the blackness along a tunnel. Soon you hear, ahead, the murmur of water which grows ever more distinct. After walking about two hundred feet, you suddenly sense that you have reached the river. Only your ears can tell you that you are no longer in a narrow passageway but in a large cavern. You hear the murmuring and rippling of the water and the echoing of these sounds from the cavern roof. Your shoes make whispers in the sand and you know you are standing at the water's edge for your ears bring the faint lappings of wavelets on the sand at your feet. In all your life, you have never been in such total darkness. It is a moist, cool, velvety blackness, so thick a blackness that it seems you could push it away.

Your ears now detect a new sound. From far upstream, you catch a faint rhythm. It is not the sound made by water but a low-pitched creaking, alternating with moments of silence. The rhythm seems to be growing louder as though coming downstream toward you. The sound tugs at your memory. Now you recall. It is the noise of oarlocks. Someone is rowing a boat down this river. You listen, fascinated. By now, you can hear the splash as the oars enter the water, followed by the heavy creak as they

sweep the boat forward. And now you catch a fainter creak as the oars sweep up through the air.

The sound is growing closer. Very soon, the boat will reach your position on the river bank. You listen carefully, separating the sounds from their echoes. It is very close. At this moment, your ears tell you that it is directly opposite. You can hear the trickles of water dripping from the oars.

Already, the boat is moving away as the speed of the current and the sweep of the oars take it downstream. Each stroke sounds a bit fainter but you can still hear them. Now the boat is gone. There is only the rippling and murmuring of the water, the echoes from the cavern roof and the sound of gentle lapping at your feet. You stand a few moments more, reveling in this unique experience. Then the guide leads you back to the car, which starts slowly upward. As you ascend, it grows gradually lighter. The rock walls of the shaft begin to take on color, the guide's face appears and his features become distinct. Then you step out of the car into the bright warm sunshine of the Arizona desert.

FARSIGHTED EYES

Many farsighted persons have excellent vision, both at distance and at the close point but, straining with every look, suffer whenever they regard anything, near or far. This suffering involves such furious mental drive and such devastating tension that the eyes tear themselves and their owners to pieces. In other words, these

people do not profit from their healthy eyes and good vision.

One reason for this seemingly puzzling condition is the fact that such eyes are stiff and set; that is, they do not know how to shift, trying to blot up, so to speak, the distant view or the page of print they are holding. Although there may be no visual problem, relaxation during activity is the salvation for such eyes. To rectify this bad habit, try the following drill:

1. Go back to Card No. 1 and turn it upside down.
2. Hold the card about six inches from the tip of your nose, your attention on the last quarter of printed matter.
3. Point your nose at the white margin on the left of the card and, turning your head, sweep the vision across the white spaces until your nose points at the white margin on the right. *Do not look at the print* or it may bother you. Watch only the spaces, for it is no strain to look at a plain surface, either near or far.
4. Continue this sweeping swing back and forth on the white spaces four times each way, ignoring the lines of print.
5. Close your eyes and repeat, four times, the sweeping swing back and forth, remembering the passing white spaces.
6. Continue this sweeping swing for five minutes, four times closed and four times open, alternately, not forgetting to breathe rhythmically.
7. Turn the card right side up and start to read. It will be easier because the eyes have had the experience

of traveling or shifting instead of blotting. This is streamlining vision instead of spot reading.

Though they have good vision, these types of farsighted eyes are under such strain that they need to be taught to see when they look around and to notice what they see. People with such eyes can enter a crowded room and, afterward, be unable to tell what the room and its decorations were like or how many of the people were dressed; this in spite of the fact that their good vision was keen enough to have taken in everything.

A mother of one little girl with such eyes reported that she would send the child to another room to fetch something. The child would obediently run to the room, turn around three times and rush back declaring that she could not find it. On careful inquiry, it developed that using her eyes to search for the object was so painful to this child and made her so nervous that in order to escape further strain she just went through the motions of looking around. To anyone with normal vision, this story will sound like an exaggeration but to a sufferer from similar eyestrain it will be recognized as a personal experience.

This same type of sufferer was given a pack of twenty picture cards, each with a descriptive word beneath the picture. He was asked to go through the pack, looking at each word and each picture. This he did rapidly and laid the pack aside. Although he had seen each card, he was not able to remember one-third of the pictures when the words were read back to him. His eyes had seen and had read but had not noticed because the strain of look-

ing was so great that eye-mind coordination had not taken place. In simpler terms, the owner of the camera did not develop the film.

A good practical drill such eyes can give themselves is to determine, for an entire day, to notice and observe everything red that meets the view: objects in the street or in a room, the clothes on the people encountered. The next day could be dedicated to the awareness of blue: in gardens, houses, automobiles, etc. Another day, yellow could be the objective and so on around the spectrum.

To make the game more efficacious, at the end of the day write a list of the items noticed.

If you are the possessor of suffering farsighted eyes, you will probably give yourself the alibi used by all people tied up with tension, "But I have no time to do all these relaxation drills. I'm a busy person!"

It has been said, "There is just as much time in the world now as there ever was," and there is no more to be accomplished now than in the days of our busy pioneer forefathers. We waste our time by running around in circles. We fail to realize our personal possibilities because of confused disorderly thinking. It requires no more time to look with ease and with relaxation than to twist up our faces, tighten our eyes and look with strain. Remember that much of our exhaustion is really tension rather than honest weariness. So apply your knowledge of easy vision all the time during each day's work, whatever the routine. Your strength and nerves will last longer with power in reserve and will enable you to finish the day with a feeling of well-being.

Make it a habit to look easily with soft-feeling eyeballs and you will lengthen the period of time in which you can use your eyes without discomfort. Furthermore, you will be able to accomplish more each hour because when the eyes become relaxed, the mind becomes relaxed and thought becomes more organized. Constructive creative thinking is possible only when the mind is relaxed.

THE ILLUSION OF MOTION

To create the illusion of motion in farsighted eyes, practice the following swing:

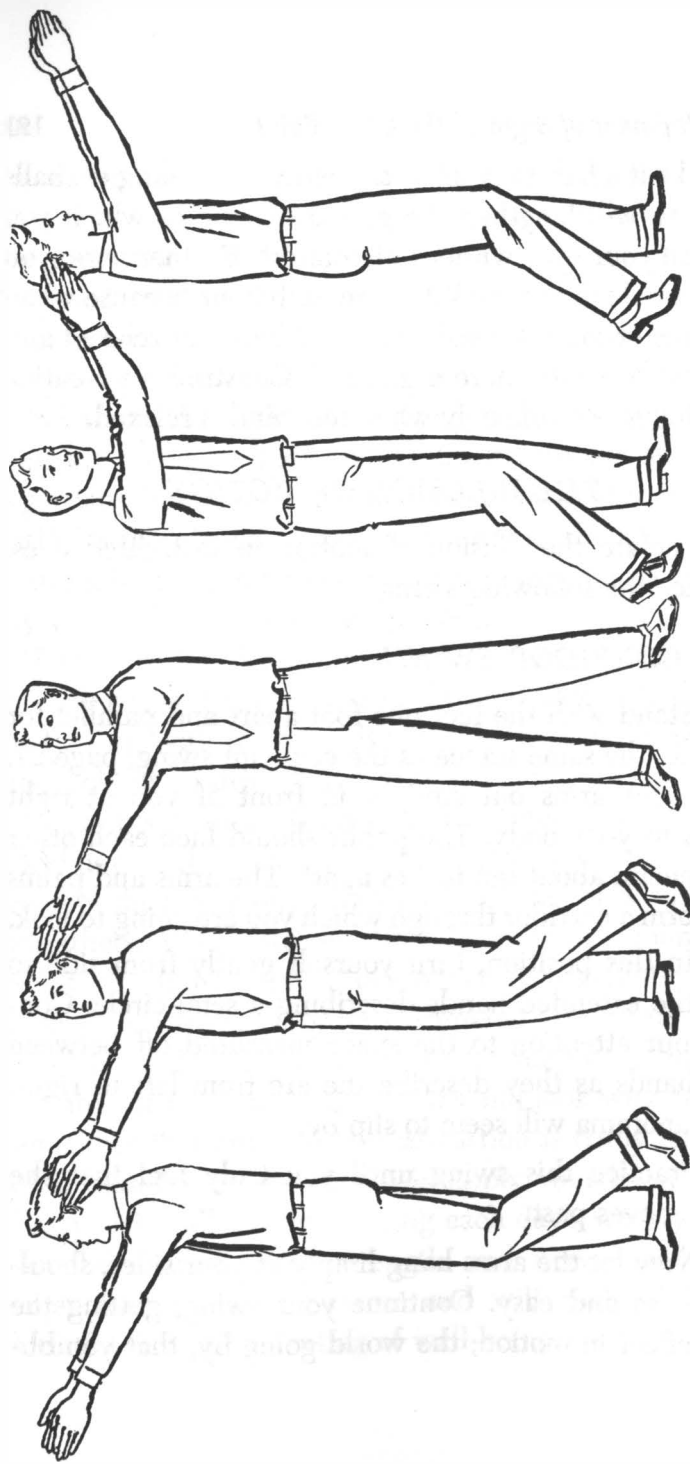
THE CORRIDOR SWING

1. Stand with the feet one foot apart and parallel for balance, the same stance as the elephant swing, page 27. Hold your arms out straight in front of you at right angles to your body. The palms should face each other and remain about ten inches apart. The arms and palms thus form a corridor through which you are going to look.

2. In this position, turn yourself gently from side to side, the extended hands describing a semi-circle. Confine your attention to the space measured off between your hands as they describe the arc from left to right. The panorama will seem to slip by.

3. Practice this swing until you truly feel that the world moves past.

4. Now let the arms hang limply at your sides, shoulders loose and easy. Continue your swing, getting the same effect in motion, the world going by, that you ob-



THE CORRIDOR SWING

tained when looking through the corridor between extended palms.

Do not make a task of this. It is simple. It is relativity. You pass the world, the world passes you, back and forth as you swing a half circle.

Attaining this illusion of motion is the first step in loosening tight fixed eyes. It starts the eyes shifting. Since shifting is an involuntary activity you cannot make the eyes shift by trying. Do not even try to feel your eyes move. Involuntary activities are without sensation. Your guarantee that this shifting is taking place is the rapid passing of your surroundings.

SWING HIGH, SWING LOW

Purposes:

1. From this swing you will receive many benefits. People who have heavy overhanging brows that almost telescope the upper lid, compressing the eyeballs, can train those brows into correct position.

2. Those who are prone to car-sickness or seasickness can get the feeling of motion which eliminates the strain that causes these reactions.

3. When a sensation of motion really takes place, the eyes begin to shift more as the normal eye shifts.

4. This swing aids in getting the head correctly pivoted over its spinal column.

Directions:

1. Hold a long pencil horizontally by the eraser before

your face, about six inches in front of the tip of your nose. Do not move the pencil.

2. *Close your eyes* and swing the head gently back until the nose points to the ceiling, then gently down until the nose points to the floor. As your head goes up the pencil seems to go down, until it is below chin level. As the head goes down, the pencil seems to rise until it is above forehead level. Practice this with eyes closed until you can *think* the motion correctly.

3. Open your eyes, continuing your gentle up and down swing and pay no attention to the pencil except to notice that it passes by. Now, you can see the pencil pass on its way down to chin level and see it rise until it reaches forehead level.

4. Think and say aloud, "The pencil falls, the pencil rises." Do four swings with eyes open, then four with eyes closed.

5. Next, lay aside the pencil and hold out two index fingers, tip to tip, horizontally to take the place of the pencil. They too rise and fall as you swing up and down.

6. Notice that the whole room, within your vision, moves with the pencil, or the horizontal fingers, in a contrary direction to the swing of your head.

Do this swing thoughtfully each day and whenever the eyes feel tight or heavy-lidded. Not only will there be a marked improvement in your appearance but you will be aware of the release of tension and of greater freedom in the activity of your eyes.

INSOMNIA

So few with these far-seeing eyes know how to sleep. It may take them hours to drift off into semiconsciousness and the least noise or breath of air will snap them into full alertness again. They may then thrash and toss until morning, dragging through the next day exhausted. The following night, they take a sleeping pill. Many have not slept without the aid of drugs for fifteen or twenty years. It will be a comfort for such sufferers to know that the drills in relaxation which follow will help them. As their nerves are soothed their eyes improve and they find sleeping peacefully to be as natural a function as breathing. This result will be speeded if they will believe and remember what Dr. J. A. Jackson teaches us in *Outwitting Our Nerves*. "We do not need more sleep than our bodies take. If the body is kept still and emotion eliminated, fatigue products are washed away." * Nature restores us for another day.

RELAXING THE FIVE SENSES

If people with reading trouble would practice the following, they could develop a high degree of relaxation.

All the special senses: seeing, hearing, smelling, tasting, touching, are connected on the same ganglion nerve system. If one is tense, all are tense and their functions retarded, their power diminished. If one is relaxed, all

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are relaxed and their power intensified. Remembering and reliving sensorial experiences in imagination relaxes all the sense organs and intensifies all sense impressions. Whichever sense organ is the strongest can be stimulated in memory and imagination. The weaker organ will then respond with better functioning. For example:

1. If you are hard of hearing but have good vision, hold an alarm clock close to your ear. Is the ticking faint? Sit down comfortably, close your eyes and cover your ears with your palms to give your visual images right of way. Remember vividly and in detail:

- a. bay-blue water dotted with snow-white sails of tiny boats.
- b. the gold of a sunset.
- c. the tan of ripened grain fields undulating in a breeze.
- d. the blue of larkspur.
- e. the white of snowcapped mountains.
- f. the purple and gold velvet of a pansy.

Now listen to the clock again. Is the ticking a bit more distinct? You will not only hear better but will see more vividly.

2. Now experiment with the memory of touch, the tactile sense. Sitting quietly, eyes closed, remember:

- a. the feeling of satin as you stroke it.
- b. the texture of a wool sweater as you draw your fingers across it.
- c. the smoothness of highly polished wood as you touch it gently.

- d. the cool lightness of aluminum as you pick it up.
- e. the rough heaviness of an iron bar.
- f. the filtering sensation of beach sand running through the fingers.

When you open your eyes, are colors more vivid? And is the ticking of the clock more distinct?

3. Next, indulge your memory and imagination in sound. Take a deep breath or two. Close your eyes, cover your ears and remember:

- a. the whirr of humming-bird wings.
- b. the crunch of snow on the footpath.
- c. the crash of breakers on the shore.
- d. the chirrup of the cricket in the shrubbery at night-fall.
- e. church bells on a quiet winter morning.
- f. a cowbell in the distance at evening.

When you open your eyes, you will see more clearly and hear better.

4. The same relaxation may be obtained by memory of scents and perfumes, such as:

- a. new-mown hay.
- b. the woods after a rainfall.
- c. the fragrance of a rose.
- d. fresh violets in spring.
- e. turkey roasting in the oven.
- f. hot coffee percolating.
- g. fresh buttered popcorn.

By the memory of these perfumes, have you improved your sense of sight and sound?

5. If you are hungry, the greatest reaction will come from the memory and reliving of the sense of taste. Think of:

- a. a thick juicy broiled steak.
- b. hot gingerbread.
- c. chocolate caramels.
- d. cinnamon rolls.
- e. peppermint candy.
- f. strawberry shortcake.

If you have earnestly revived, in memory, these tastes, not only will your mouth water but your vision and hearing will be stimulated.

READING SUGGESTIONS FOR ALL EYES

Position of Reading Matter:

Many persons have the bad habit of placing a book on their stomachs or on their knees, then bending the head forward to meet the print. This cuts off the circulation of blood that should flow freely into the head and also retards breathing, and eyes must have oxygen. To prevent trick vision the book should be held up in front of the eyes. If it is too heavy to hold, a pillow, reading rack or prop should be used to maintain the correct position.

Distance of Print from the Eyes:

The orthodox belief is that print must be read at a given distance, not closer, not farther. We teach that one

can relax one's eyes to such a degree of flexibility that they can lengthen to read normal print at five inches from the eyes or flatten to read at arm's length, and any distance between. Powerful eyes can develop a greater span than this.

So, relax your eyes—make and keep them flexible!

Endurance:

As your ability to read with the naked eye improves, you must also build up your endurance. A cripple, learning to walk without his crutch, must daily increase the time he walks and the distance he accomplishes. This he does little by little, with rests between stretches. So with your reading. At first, a paragraph will be your limit. Palm and take the sun or light and you will probably be able to go further. When you can accomplish a chapter, be sure to take a thorough rest before proceeding. Review mentally the subject matter just read while you rest and your memory will improve as well as your relaxation and vision.

Plateaus:

As your eyes improve with your drills, do not be discouraged if every day your visual acuity is not the same. Even normal eyes are not normal all the time; a troublesome thought, a physical upset makes them as low as your mood but their depression just as transient. Again, as your general relaxation sets in, there will be plateaus or periods when nature is reorganizing her gains and redistributing the ninety per cent of vitality formerly

sapped by strain and now returned for normal usage. After a lull in progress, you can look for a double gain.

In conclusion, do not be afraid to use your eyes; they want to see, that is their mission in life and they are just as curious at the close point as at the distance. You can prove this by experience. If you sit in a lecture hall, your mind intent on the theme, and someone else comes onto the platform, immediately the eyes do extra work by looking at the intruder, though the mind is not in the least interested. The same will happen if the stranger beside you lifts a hand or flicks a paper, though it does not concern you in the slightest. It is not this extra work against which the eyes rebel but strain, meaning tension, mental and physical. So give your eyes their pleasure, lots of work but freedom from strain.

CHAPTER VIII

Vision: Applied to Development of Sight in Dim and Unused Retinas

"The farmer tills the soil and plants the seed but has nothing to do with its development. That is in the hands of Nature. With our vision, it is the same. We prepare the eyes with relaxation, physical and mental, then we lift the lids and Nature brings the vision through."

—GARNET MC GAVIN

MOST of us know the story of Raffles, the safe-cracker, whose fingertips contained such sensitive nerve ends that by resting them on the outside of the lock, he could sense the fall of the tumblers within when he turned the dial, and thus solve any safe combination. As the story goes, the law overtook him and he was put at hard labor behind prison walls. But there came a time when important papers were necessary to the governor of the state and Raffles was secretly called upon to open the lock on the safe where they were hidden. When Raffles returned, thrilled at the opportunity to practice his former skill, he was stunned to find that his fingertips were calloused and numb. He could feel nothing. Quickly he called for sandpaper and rubbed his fingers down to the quick where the nerve ends could get through. Then they functioned as well as ever.

Undeveloped and unused retinal nerves are much the same. They must be sensitized, sandpapered so to speak, with vision to the point where they can find light and record shadow as do those in the normal eye.

Doctors claim that there are many causes for undeveloped retinal nerves. Sometimes one eye is stronger than the other at birth and the brain, which takes the easiest way, ignores the darker window. Using only the stronger eye thus allows the dull eye to grow duller with disuse. Again, the optic nerve may be so tense that there is insufficient circulation to stimulate and nourish the retina, which as a result becomes weak, anemic and dim of sight. Or, if certain eye muscles are so tight that they pull an eye off focus—"crossed eyes"—the turned eye may give up the struggle to see or else develop vision of a poor quality in the wrong portion of the retina. In such an eye, the outer rim of the retina meets the world and a false macula or false center of sight is built up.

Since most unused eyes tend to slip off-center, we shall consider the vision of crossed eyes, meaning eyes that turn at any angle off center.

EYES THAT ARE OFF FOCUS

If you have an eye or pair of eyes that slip in or out, up or down, at odds with one another, the first thing you must do is to get them swinging true and together.

When eyes turn off-focus, the common belief is that one group of muscles is too short, the opposing group too long; hence, the eye needs the short muscle cut and needs a tuck taken in the long one. Yet we have it on

reliable medical authority that under the complete relaxation of anesthesia crossed eyes become temporarily straight. This would prove that the length of the muscles is not involved; also, that when relaxed, the muscle contraction that pulls the eye off-focus gives way and permits the eye to resume its normal position.

So, you with the cramped eye muscle that drags your eye off-focus, learn to relax that muscle without anesthetic and it will stop pulling your eye away. Most people with such eyes know that at times the muscle pull is greater while at other times it is very slight, but they do not realize this difference to be due to the amount of tension or relaxation possessed at one time or another. Will you be willing to work for better alignment of your eyes and better vision? It *will be work* and requires determination and persistence.

A cramped or convulsed muscle that will loosen under artificial relaxation can fortunately be taught to loosen by conscious relaxation. If relaxation is practiced until it becomes a subconscious habit, it is permanent. The problem resolves itself into keeping the eyes relaxed or in alignment, and teaching them to see better that way.

Remove your glasses, do all the relaxation swings and drills described in the first part of the book, both the mental and physical drills. Take care to direct your seeing toward the side to which you wish to coax the eye. Add the following swing:

THE HIGH-HAT SWING

Hold your open hands, fingers spread, palms front,

above each shoulder and on the level with your eyes. With head pivoted directly above the spine, start a gentle head swing, turning from one side to the other, glancing at the fingers and thinking toward them, out one side, then out the other. Do not make effort or stare or strain. Do not do anything consciously with the physical eye. Just glance casually. This will give the two eyes the feeling of thinking and looking the same way at the same time.

At first, you may not get much of a reaction but persist and, as the mind and eyes get the feeling of harmonious cooperation, you will notice improvement. This swing with the others will bring, eventually, a difference in appearance when you are relaxed. One child with very crossed eyes reported, "When I finish swinging, I look at Daddy and he says, 'Darling, your eyes are perfectly straight!'" These swings, by gently loosening (not exercising) the muscles, make muscular alignment possible.

But this is only the beginning of your task!

Before a crossed eye will turn straight and hold its position, you must "sandpaper," figuratively speaking, the retinal nerves in the unused portion of the retina, the part of the eye from which you see most poorly. To reach this portion, you must cover the other eye with a hood or patch and work the weaker one. Wear the patch for very short periods and only for the easiest and most familiar seeing until the vision improves. Otherwise you may become nervous and fatigued. You will notice great improvement if you have the desire and determination to practice earnestly each day. Accent the sunning and the palming!

The duller portion of the retina in a crossed eye is its center of sight, the macula. This dullness results from long disuse, hence lack of stimulation. The macula nerves can be stimulated only when the eye is relaxed and while it is in motion; that is, when it is shifting, an involuntary and unconscious activity. How to get the eye to shift? Here is a suggestion.

Turn the page of the book lengthwise so that the lines of print run up and down instead of across. Patch one eye. Hold the page before the crossed eye, quite close, and in the direction toward which you wish to direct the eye. If the eye turns in, you would hold the page by the temple. If the eye turns out, you would hold the page in front of the covered eye so that the miscreant would have to look over your nose to shift. With a gentle head swing, travel back and forth across the page until the lines and spaces click by like a picket fence. Close the eye and remember what you saw, continuing the gentle head swing. Open and see it again. You can alternate swinging with eyes opened and closed for five minutes at a time with good results, sometimes holding the page closer, sometimes farther away.

Now, turn the print upside down so there will be no temptation to read it, and travel up and down across the horizontal pickets in the same manner. The lines will seem to rise and fall. Then turn the page on an angle and travel across the rows of black and white, "kitty corner and katty corner." If you conscientiously alternate rest swings between open-eyed swings, the room may seem brighter after this drill for you have been "sandpapering"

or stimulating the retinal nerves. This stimulation is thus brought about without strain since no interpretation is called for. You were just letting the lines go by, making no demands for vision. The other eye should have the same drill. It needs attention too, even though you do not feel that it misbehaves.

THE SHUTTLE DRILL

The purpose of this drill is to work directly on the center of sight.

1. Put in a black ink dot in the center of your thumbnail. Leave it there to help you build vision during the day when you have a free moment.

2. Close your eyes and think of the thumbnail beside the dot at the left, then shift your memory quickly to the thumbnail at the right of the dot. Can you direct your attention back and forth across the dot, from side to side, with the eyes closed?

3. When you can, open your eyes and with a shuttle shift travel quickly from left to right, back and forth. The dot will soon seem to get out of your way so that you can see the thumbnail on one side, then on the other.

This tiny shuttle shift brings the center of sight into play and stimulates vision. At the same time it relaxes the nerves to the point of relieving or preventing headache. When the eyes centralize, they do so in a relaxed condition. This gives mental control. Therefore, drills in centralizing are important to the mind as well, since perfect visual focus (macular focus) makes a clear mental focus, resulting in *orderly* instead of *disorderly* thinking.

MENTAL DRILL. *To enliven a dull eye*

Since the mind is lazy and looks through the clearest window, a weak eye grows weaker through disuse. We must therefore teach the mind to think through the lazy eye. Close both eyes. Cover the strong eye with your palm so that the mind knows no vision through it is possible. Then think of an object you know to be before you. You will find that the uncovered eye, though closed, is doing the thinking or mental seeing. This teaches the weak eye to see while you palm both eyes by loosening the palm in front of it. You will feel the mind directing its attention through it though you keep it closed and loosely covered. For contrast, closely cover the weak eye, loosen the palm over the strong eye and you will find the mental power reversed.

Having done all the foregoing drills and relaxation devices for a week or more, you will be ready to train your eye really to see and the mind to interpret what you see, *through the center of sight*. Patch the stronger eye and do the calendar game described for eyes with near sight (Chapter VI). You will get a slightly different reaction from that of the nearsighted eye. When you first look at a number on the big calendar, it will scarcely be there but if you will do the shuttle shift on what appears to be but a vague spot, (the Thumb Dot shift), it will begin to form, then clear, and before you leave it to juggle again the next number may volunteer. Sometimes when the vision turns on, it is as if someone had spotlighted every number. That is the result of foveal activity. In

other words, be patient and willing to "sandpaper" until you reach the sensitive nerve ends and vision comes through. With this exception, follow the instructions in the chapter on nearsighted eyes.

THE MAGAZINE DRILL. *For dull eyes:*

1. Put up a magazine with a large title at the end of your room in good light. Look at it well before you leave it. Notice every letter of the title so that you can remember just how it looks.

2. Now go a few yards back. Do not look at the title yet. Instead, look at all the objects down the side of the room approaching the magazine title. See how many things you notice as you slip quickly by to the magazine. Let the eyes sweep across that title at last. Not clear?

3. Close the eyes and remember the title as it looked in your hand, how perfect it appeared, the shape of each letter.

4. Now, take a deep breath and again sweep down the side of the room to the magazine. Slide your vision back and forth over the title several times, blinking and breathing. It may clear in a flash for a brief moment. If it does not, step a little closer at first; the distance can be increased as your vision improves.

Vary your drills from week to week, using suitable ones found in other parts of the book. The Mirror Swing described in Chapter X for crosseyed babies is excellent. The Toothpick Drill in Chapter VII is very good.

DAILY HOMEWORK CHART—VISION BUILDING

MON.												
TUES.												
WED.												
THU.												
FRI.												
SAT.												
SUN.												

Each square represents 15 minutes a day. Do you ever waste 15 minutes a day? Twice a day? You could do eye training instead. Place a chart like this where you can see it every day. Fill in the spaces with your accomplishments.

THE MOTORING DRILL

Here is an interesting swing to practice while motor-ing: If possible, put a rear-view mirror at each side of your windshield. When you ride as a passenger, remove your glasses and glance from mirror to mirror, then out the straightaway. This causes rhythmic shifting and interested looking. If your eyes are sufficiently strained that you have no fusion, you will need to do this drill with each eye separately.

Fusion occurs when the two images presented by properly focused eyes merge and the person sees but a single image. When the center of sight is stimulated in each eye to the point where it sees better straight ahead than off-center, you may be surprised to find the two eyes working together. This sometimes comes spontaneously when the eyes swing free to centralize for, by this time, they should have learned how to remain relaxed during activity.

Dynamic relaxation, once established, is a habit of living and using the eyes. It will continue unconsciously and, barring illness or accident, will remain with one always. The correct muscular development takes place and remains by the mere process of proper living. What the eye learns to do, it can always repeat. When the mind learns to relax in action, it can always repeat. Once attained, the knowledge of correct use of the eyes cannot be lost. Retinas that are stimulated in the macular area (center of sight) are permanently stimulated, bringing real vision and mental development.

CHAPTER IX

Summary of Daily Drills for Relaxation

"Smile behind the eyes, feel loose and easy.
Let yourself be happy in doing your drills."

—GARNET MC GAVIN

MANY times we have been asked to organize or plot a plan of procedure for people who have no skilled instructor while training their eyes. The following is a daily schedule.

MORNING DRILLS

As you lie in bed coming alive on awakening, your muscles are flaccid, your breathing slow and your heart not worked up to rapid action. Many persons are more tense in their sleeping than in their waking hours. These drills will loosen tensions, speed circulation and start your day right.

BODY DRILLS

1. Stretch. To loosen tight tendons and muscles cramped from over-heavy sleeping, stretch gently as if elastic, every atom of you in every direction, all the voluntary muscles of the body. No animal willingly leaps from sound sleep into action without, first, a good stretch.

2. Yawn wide like a hippopotamus, dropping your chin, taking your head away from it and coming back to get it again. This loosens the lungs for deep breathing. There is nothing more effective than a yawn. Watch a dog or baby to perfect your skill.

3. Wiggle like a fish. Visualize the vertebral activity of a fish as it swims through the water. Try to imitate it by wriggling your own spine from the base of the skull down to the very last vertebra. Now your body is free.

ORBIT DRILLS

These involve the nerves and muscles surrounding the eyes.

1. *Brow Wangling*: People with strained eyes often allow the heaviness of the brows and upper lids to encroach upon the movements of the eyeball, even without realizing it, hence causing greater strain. So loosen the facial muscles, particularly those about your eyes. Elevate both brows in surprise. Get the weight of those heavy brows off the burdened eyes. Holding one brow up, pull down the other. Alternate. You may find this quite difficult, at first, but a little practice will bring success. This divorces the brows from the lid action. Some persons actually blink with their entire foreheads. Do this drill three or four times.

2. *Blinking*: With the weight of the brows off the eyes, do ten quick little butterfly blinks, not tight hard closings in which your whole personality takes part, but light feathery flickery little blinks. Then close the eyes and

turn your head from side to side as a rest. Do ten more blinks and rest. Each morning add ten blinks, always with rests between groups until you gain the strength to do ten groups of ten blinks each without tiring. This puts muscle tone in the lids so that they will blink often and naturally during the day. Few persons with strained eyes blink frequently enough to keep the eyeball lubricated and disinfected with the tears which nature provides for that purpose.

3. *Massaging the Eyeballs:* Squeeze your eyelids tight, then open them as wide as possible. This pressure of the lids gives your eyeballs a thorough rubbing, far better than with the hands. Squeeze them tight and open them wide four or five times. Be careful to keep your brows up in position and do not distort your face; this is not a facial exercise. Make the lids alone work for muscle tone. This will speed circulation through the eyeballs and strengthen the blinking muscles.

NOSE DRAWING

One of the cleverest yet simplest devices for relaxation ever developed by a teacher in our studio is nose drawing. It helps to loosen your head on its axis and to start the eyes shifting their many involuntary little shifts per second. It brings good results to everyone and is a general favorite.

Close your eyes and pretend that your nose is a long crayon. You are going to draw pictures and write words with your nose, out in the air. Your head will be on its pivot at the top of your spine. But do not make an ex-

ercise of this drill. This is strictly a loosener at the base of the skull where the tension is the heaviest.

1. *The Pie*: Draw a nice round pie, taking pains to have it very round and very smooth and perfect. You will have to go around it each way several times to make sure of this. Now decide what sort of pie it is. Apple? Carefully prick a capital "A" in the center, working for perfection rather than speed. Let your nose-crayon plunge straight forward (not upward) and the head straight back each time. Next, mark the pie in sections in order to guide the knife when it is cut. Do this carefully, thoughtfully, returning to dead center with each mark. Now, scallop the edge of the pie neatly, rhythmically, all around the outside. Next, with free Spencerian motion, write your name under your handiwork in good script with this long crayon-nose; it is *your* pie! Take care to cross the t's and dot the i's. If you like this drill and feel the need of more, you may make a pie for a friend and put his name on it.

2. *The Four-Leaf Clover*: With your crayon-nose, draw a neat fat figure 8, then lay it on its side and make it just as perfect. If you are anything of an artist, you can superimpose the upright 8 on the reclining 8 and you will have a four-leaf clover.

Now see if you can, without lifting the crayon-nose from your clover and without breaking the flowing line, travel over all the loops in rhythmic succession, the upright 8 and the reclining 8.

3. *Progressive O*: All of us have stood at the fountain-

pen counter to try out a penpoint. The usual marks we make are loops, a progressive series of connected O's such as we used to practice in penmanship. Draw these loops with your crayon-nose. Did you start your series of O's at the top or the base? Whichever way you did, reverse it and repeat another long series.

All this may seem imaginative and far-fetched but it is scientifically sound, because whenever the mind thinks a shape or motion and the body does it, the eyes begin their vibrations and better vision results. These drills loosen any tensions that may be at the base of the skull, the seat of all tension, where the most delicate nerves, the medulla, reside. They act as a mild exercise to these nerves, soothing and relaxing them, and thus improving all the special senses of the body. Whenever in need of relaxation, do a lot of nose drawing. You can think of other things you would like to write or draw.

THE FINGER SWING

This swing was devised by Dr. Bates as a first step in breaking tension.

As you are still reclining in bed, close your eyes, put your index finger a short distance in front of your nose. Turn your head from side to side on the pillow, imagining where the finger is, as the finger and the face pass each other. Now open your eyes and continue the swing; the finger will seem to move toward one ear, then toward the other, with gentle rhythmic motion. Do not focus on the finger as it goes by but let your vision, directed by your nose, sweep across the ceiling. Continue

this swing at least 20 or 30 times, alternately closed, then open, until the eyes feel loose and easy and moist, and until motion *really* seems to take place. This starts the eyes in their many-times-per-second shift for the day. Remember, the shift is something involuntary that is done *by* the eyes, not something we do *to* the eyes. You will not feel the shift; if your finger moves, that is your guarantee that the shift is taking place.

Simple as this swing seems, it has been known to stop or prevent headaches and can be done to good advantage anytime during the day while sitting or standing. Be sure that the head is pivoted directly above the spine. It is a twister of the neck, not a neck bender; a relaxer, not an exercise. Use it as a first aid against tension.

PALMING

(Review Chapter III on general physical relaxation)

While lying on your back, palm your closed eyes, propping up your elbows on an extra pillow so that there will be no strain or effort. Indulge in your favorite mental picture or mental drill for five or ten minutes. This will start the eyes on their day's work in a relaxed condition. When a relaxed eye is closed, it automatically assumes a downward position. This is true of relaxed sleeping.

THE ELEPHANT SWING

On arising, do your Elephant Swing 100 times. (Read again Chapter III.) Be sure to get the feeling that the

world is slipping back and forth from side to side. If a sunny window permits you to do this swing in the sunshine, you can give your eyes a sun bath at the same time.

SUNNING

Sun your eyes as soon as you can on arising, and as frequently as possible throughout the day (Chapter III for directions). Dip your closed lids into the sun at every opportunity, even though you do not have time to blink through, and afterward palm out the spots or after-images. The sun loosens tight muscles and stimulates circulation and retinal activity, thereby releasing the eyes and maintaining their vision. If there is no sun, substitute the brightest light you can find. Eyes must have light.

GENERAL DIRECTIONS TO FOLLOW ALL DAY

Watch that you keep your head pivoted above the spine. Many tilt their heads to one side or the other, thrust their chins forward or duck their heads to look up. Check your posture by nodding your head up and down, then by turning your nose from side to side. If both motions are possible, your head is pivoted.

Instill the habit of turning your nose toward what you wish to see as this will insure a correct visual angle.

Check your eyelid habits. Do not blink hard or snap your lids open violently. Blink often while you are looking.

Do not stare holes into things you look at. Remember to take in an object by shifting your attention all over it.

Whenever you look at something *near*, try to give a quick compensating look far away. This will keep the eyes flexible for both distances.

Be alert to the world about you—be interested both near and far.

Perfect your memory images.

Do not try to think two things at the same time, the contents of the book you are studying or reading and the radio program coming into your ears. This will ruin mental focus and, with that, visual focus.

See to it that you do not clench your jaw and grind your teeth while intent upon close work. This causes the worst kind of tension and is held responsible for many troubles of the teeth, eyes and ears.

WARNING: Resolve never to do heavy work with your eyes when you are ill or recuperating from an illness. After an illness, eyes are as frail as the rest of your body, and they can be seriously damaged by constant reading during a convalescence.

Remember our rule in all your relaxation drills. Good vision is effortless and painless. If you feel discomfort from any of these drills, you are doing something wrong.

Look forward to and enjoy doing your drills each day. They will make you feel so much better that you will be repaid for the attention you have devoted to them.

Continuity of application and consistency in the performance of routine makes for perfection of technique and establishment of good habits. If you stop short of

normal sight, you will revert to your old strained habits. Remember, it is your devotion to routine that will bring results.

When your eyes have learned to maintain their relaxation, you will feel a benefit to your entire nervous system. This will be noticed in greater efficiency at work or in school. You will find that you are making a more favorable impression on people, socially and in business. Your calm mien and agreeable disposition will react in like manner on those with whom you deal because tension draws tension, relaxation begets relaxation. Your mirror, too, will reward you, for relaxed eyes, when freed from scowling brows, seem larger, wider open and sunny clear.

CHAPTER X

Home Training for the Eyes of Babies and Small Children

"Montessori has taught us that it is only when children are interested that they can learn. It is equally true that it is only when they are interested that they can see . . . without mental control one can neither learn nor see." *

—WILLIAM H. BATES, M.D.

SO MANY requests come to us for help with children—the little folk of early school or pre-school age—that a few suggestions to parents may be in order.

In the studio we get wonderful results through play, strictly kindergarten methods which the parents can carry on at home. Work with the tots of four years or under brings prompt results because their young eyes are still in the formative period; doctors agree that fusion is not constant or complete until the age of two or three.

Since eyestrain is caused by a strong mental effort to decipher what meets the eye, the first school year makes the initial demand on a child's eyes for clear and accurate vision. In the result of his visual effort lies a penalty or a reward, humiliation or praise. Before school competition, tiny children playing together either see a thing or they do not, and it is of no consequence. One will say, "See

* From *Better Eyesight Without Glasses* (Henry Holt & Co., Inc.).

the airplane!" and point high into the sky. A shortsighted playmate may glance up and answer, "Nopel" and go right on playing with what he *can* see; no compulsion, no penalty. But the next year, when the teacher points out something on the blackboard and he cannot see it, chagrin is the reaction and a fear complex is established. This results in a persistent effort-habit and eyestrain, with increasing refractive error as the months go by.

It is not difficult for parents to discover that a child is nearsighted or that one eye is weaker than the other by questioning him, at different distances, about pictures and toys, or by checking his vision while motoring. Often a more accurate analysis of baby eyes is possible in the home than with a stranger under formal surroundings.

Many tiny tots are so terrified by being taken to an unfamiliar office and by meeting strange people that the doctor can get no cooperation at all, but at home where they are at ease, the parents can draw them out in the course of conversation or play.

HELPS PARENTS TOO

Parents would be able to normalize their young children's eyes by working at it earnestly and conscientiously. Teaching the children drills in relaxation, body swings, palming, etc. would be good for parental nerves as well. It does, however, require work, time and attention to improve the child's vision. It requires regular daily periods devoted to the implanting and developing of habits of relaxation, then the utilization of that relaxation for good habits of seeing. Children love activity

and adult companionship in their activity. If a grownup would play their relaxation games with them, the curse of daily drill routines would disappear and noticeable progress in vision would be the reward. Three-year-old Joey had one undeveloped eye that crossed. This was being trained to see with centralized vision. He would eagerly remind his mother on busy mornings, "We didn't do our eye games yet, Mommy."

Swinging babies will stop crying spells. Swings have been know to stop tantrums in children with frantic nerves. It is regrettable that mothers no longer practice the custom of rocking a baby to sleep. This was, for ages, the natural procedure. It had great value as a relaxation for the mother as well as for the child. Tension is tremendously communicable. So is relaxation. A frantic mother can tense a child. Time out to rock the baby soothes and relaxes them both—a mutual benefit.

Once a baby girl was having her first lesson for crossed eyes. She had been taught her swings and was sitting on a tiny footstool, little hands over her eyes, elbows on her knees, palming. The rhythm of the head swing was still in her baby mind as she swayed while she palmed. The mother's attention was called to the swing and the child looked up and volunteered, "It feels so good on the neck!" Even young children suffer from neck tensions and taut nerves. They enjoy relaxing.

Infants in arms should be swung in the sunshine, faces tipped so that the rays fall on the eyelids. The eyes will close automatically. At first the babies may brace against the brightness but soon the warmth soothes them and

they settle back with a sigh and relax. Two- or three-year-olds can be taught to cover one eye and blink "sparkles" with the other. It can be made a real game—lots of fun!

A little, but often, is the rule in this as in all our drills. Sun on crooked eyes relaxes the cramped muscles almost as much as anesthesia, under which crossed eyes temporarily straighten. Turned eyes are in better alignment after a sunning.

Any toddler can be coaxed to palm if someone will tell a happy story to keep the young mind interested. Even a nervous child will sit and palm five or ten minutes under these conditions, especially if the sunning and the swings have been given first.

Babies with eyestrain suffer from excruciating nervous tension which is often mistaken for violent temper. Once, a goldenhaired baby, almost blind, was brought to me. Just toddling age, she was put on the floor by her parents and made her way over to me. I reached down and took the little hand. The mother screamed, "Look out! She will bite you!" She did—and violently! This was not meanness; it was frantic, pent-up nerves demanding an outlet. I seated the child out on the lawn, back to the sunshine and she began rocking backwards and forwards, droning a little buzzing sound. "She is putting herself to sleep," the mother explained. It was a natural swing in the soothing warmth of the sun. In two minutes, she rolled over, sound asleep.

When one eye is turned off focus or is weaker, it should be given extra work to do. The brain is lazy and

uses the clearer channel, ignoring the other. With a child, a domed patch should be coaxed over the strong eye for very short periods, at first. To remove the feeling of an ordeal and make it a pleasurable interlude, some particularly appealing game or busy work should be furnished during the patch period. Palming should precede and follow the patch work. As the weak eye strengthens and the child is able to forget the patch while he plays, patch periods of increasing length can be accomplished. Patch work should never be done when the child is tired or hungry. After breakfast, when the child is fresh and happy, or after the nap or rest in the afternoon, are the most advantageous times. Extra sleep and rest are a vital necessity for nervous children. All those with eye defects are nervous. The Elephant Swing before the nap will make the rest more welcome.

THE BAG-OF-GOLD SWING

An adult, preferably with a strong back, stands behind the child and encircles him with his arms, bending forward so that the child may hang limp from the waist across the adult's clasped hands like a rag doll. The child's feet swing free on one side while head and arms dangle on the other. Then he is swayed gently from side to side in an arc, letting the floor smooth past. Watch that he does not try to hold his head up rigidly but lets it hang limp with arms and shoulders. The babies love the swing, tense children in the studio often begging, "Please let's play Bag-of-Gold!" Hum a "rock-a-bye" as you swing. Unconsciously, as the neck and spine loosen,

the eye muscles relax too and start their normal shifts which make better alignment possible.

THE MIRROR SWING

This is for children who "crooked their eyes," as one baby expressed it. For a left eye that turns in, patch the right eye or cover it with a palm. Turn the child's back to a mirror and start an elephant swing, having him glance over the left shoulder each time he swings toward the left. To make it a game, each time the child glances the mother should smile or wave into the mirror.

If the left eye pulls out, the mirror glance should be over the right shoulder so that the vision of the left eye will be across the nose. If the right eye is the offender, it can be treated accordingly and swung in the direction it needs to go.

DAILY HOME ROUTINE:

This program has been worked out for Kindergarten and Primary children:

THE SUN LESSON

1. Stand beside the child, facing the morning sun with eyes closed and swing gently from side to side. Sing together the school song, "Good morning, merry sunshine." Singing not only establishes the rhythm necessary to relaxation but causes deep breathing which permits a greater flow of freshly oxygenized blood to the eyes. If the sun is taken through a window indoors, take care that the air is fresh. Call the child's attention to the feel-

ing that the sun shines first on one ear, then passes and shines on the other ear, warming the closed eyes as it goes by.

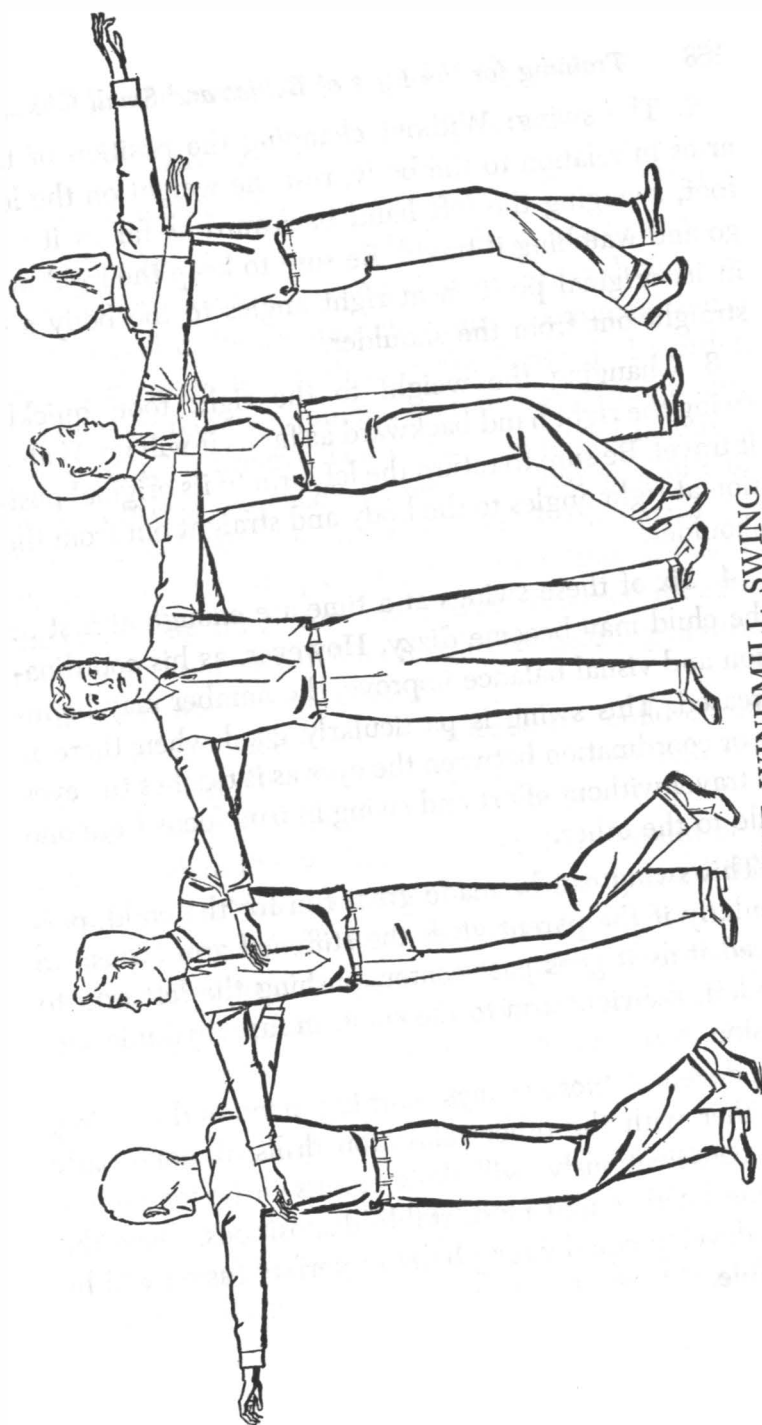
2. Next the child covers one eye with his palm and glances, blinking, at the sun as he swings by, half a dozen times. Repeat with the other eye. If this drill can be done out-of-doors, it is doubly relaxing. However, it can be done with great benefit indoors before a sunny window if that is more convenient or if the weather is cold. When no sun is available, a warm bright light can be substituted. Dr. Bates recommended an infra red 260-watt bulb in lieu of sunshine for cloudy climates, night use or dull weather. Eyes need brightness, artificial light if natural brightness is unavailable. Children love this swing and it is good for the parents as well. Two stanzas of the song will be long enough for this sun game.

PLAYING ELEPHANT

Teach the child this swing as described for adults, page 26. If it is done to a waltz tune on a phonograph, it will be twice as relaxing. When the child's nerves have been soothed by the workout of the large muscles, he will be willing and eager to sit down quietly with covered eyes and palm.

PLAYING WINDMILL

1. Position: The child stands with feet apart and braced as when playing elephant. The arms are held straight out from the shoulders on either side at right angles to the body.



THE WINDMILL SWING

2. The swing: Without changing the position of the arms in relation to the body, rest the weight on the left foot, swinging the left hand backward as far as it will go and watching it travel. Be sure to keep the right arm in its original position at right angles to the body and straight out from the shoulder.

3. Changing the weight to the right foot, quickly swing the right hand backward as far as it will go. Watch it travel. Be sure to return the left arm to its original position at right angles to the body and straight out from the shoulder.

4. Six of these swings at a time are enough at first or the child may become dizzy. However, as his coordination and visual balance improve, the number may be increased. This swing is particularly good when there is poor coordination between the eyes as it teaches the eyes to travel without effort and swing in true focus from one side to the other.

This swing can be made great fun for the child, particularly if the parent gives the stiffened arm a push to speed it as it goes past center, pushing the left arm to the left, the right arm to the right, in fast rhythmic succession.

A dozen of these swings morning, noon and evening, together with the other relaxation drills, if done daily and conscientiously, will show results in better nerves, muscle balance and more stable dispositions. Once the eyes develop equal strength, more perfect fusion will be possible.

PALMING FOR CHILDREN

(See page 36 for method and purpose of palming)

Palming has to be sold to little children as carefully as to the nervous adult. The palming period should not be an ordeal to be ordered at parental command but a time of pleasure to which he looks forward. To order, "Go do your palming, Johnny, I'll tell you when ten minutes is past," is useless. Ten whole minutes of inactivity is like a prison sentence to a nervous child and all children with defective vision are nervous. If the parent will make the ten minute palming period the time to read to the child a thrilling "continued" story reserved for these times only, Johnny will look forward to palming in order to find out what happens next.

"But Johnny doesn't want to leave the children and come in for ten minutes," is the parental complaint. Why not have the children come in too? Or, better yet, come outdoors when the weather is favorable. It would be no more trouble. Most youngsters are overstimulated these days and play too violently. It would be a boon to any neighborhood to have one mother who would read during a short rest period each day when the children come home tired from school and again at the end of the afternoon when overexcitement of too strenuous play brings tensions, tears and quarrels.

If there is no one to read to the child, he should be called in to hear regular favorite radio programs, preferably of the less stimulating variety.

The rule for palming is: short, happy periods and fre-

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quently. If teachers in the early grades would have the class pain during story periods, there would be less fidgeting, fewer spitballs and more rapt attention.

GAME FOR NEARSIGHTED EYES

At a store that features different types of card games as well as regular playing cards, purchase two decks of alphabet cards or two decks of animal pictures. Regular playing cards may be used if the child is particularly familiar with them. Make this a guessing game.

1. The parent takes one deck, the child another. They select a distance apart at which the child has a fair chance of seeing the illustration on the card. The child's back should be to the light. A good light, preferably sunshine, should be on the teacher's card.

2. The child spreads half a deck on the floor before him, letter or picture side up. The teacher then holds up a card.

3. The child, standing in front of his cards, sways gently from one foot to the other, letting his vision pass from one margin to the other margin of the card the teacher is holding.

4. When the child thinks he can guess the letter or picture the teacher is holding up, he says nothing but picks up what he believes to be the matching card from those lying on the floor before him. Encourage him really to guess.

5. If he guesses correctly, he crosses the floor and takes the teacher's card which he won. If he misses, he

carries his own card to the teacher, who scores the point. To add interest, daily records can be kept both of the winnings and of the distance gained. The little run across the floor after choosing each letter or picture is very relaxing to the child.

6. For early grade children who are making simple sentences, the letters you show could form a sentence story, such as, "The dog runs after the cat." Any parent in close touch with the interests of a young child will be able to vary and amplify this guessing game to suit the child's particular needs.

If this game is played thoughtfully three times a week, along with the swings and morning drills mentioned in previous chapters, noticeable improvement will result.

Changing from letter cards to animal cards or playing cards will keep the game alive, interesting and varied. Eyes strain if the mind is bored. If the teacher is bored, you can be certain that the child is bored.

MENTAL PICTURE FOR REST PERIODS. During each lesson

With palms over the closed eyes and elbows resting comfortably on a cushion or a table, the child remembers the pendulum of a clock as it swings rhythmically from side to side. He turns his head slightly back and forth as if pointing his nose at the pendulum. After 20 such swings, he points his nose up to the face of the clock and remembers the numbers, saying each aloud as he travels, in imagination, about the clock's face. This he

may repeat in reverse, counting the numbers backward. Then he swings with the pendulum 20 times again, the rest period is over, the eyes refreshed, the optic nerve is stimulated and the lesson may be resumed.

MENTAL PICTURE STORY (*To be read to children while palming*)

Can you remember a gnome you saw one time in a store or in someone's garden or perhaps in a picture in a book? Wouldn't it be fun to pretend you are a little gnome helping to make toys in Santa Claus's workshop at the North Pole? The workshop looks much like an Eskimo's igloo with individual workbenches placed in a circle around the walls. All the gnomes are busy at their tasks as you enter.

Santa Claus, smiling broadly and with a merry twinkle in his eye, meets you at the door and invites you inside. He takes you to the big heater in the middle of the shop to get warm for you came many miles by dog-sled over snow-covered roads and the wind was very cold. Presently, your hands, face and feet, in fact your whole body, is very warm and you are ready to follow Santa Claus to a vacant workbench. He introduces you to Tiny, the gnome working at the bench to your right. Tiny is a cheerful fellow and you like him right away. Santa then calls Happy over to meet you. Happy works at the bench to your left. Both these gnomes, as well as all the other gnomes at their benches around this huge workshop, are wearing bright red suits, pointed caps and black leather boots much like Santa's, only much smaller, of course.

Being such a busy fellow because Christmas is only three months away, Santa asks Tiny and Happy to explain the work to you. This they do with great care for they like you as well as you like them and they want you to stay. The main thing that Santa Claus requires is good work so that the boys and girls who receive the toys will not be disappointed when they find them under the tree on Christmas morning. Happy explains that all the gnomes have fun when the day's work is done but at other times they keep their minds on the job Santa assigns them.

At the bench where you are standing, white dots are to be painted on black dominoes. Tiny takes the lid off a box of dominoes to show you. Each black domino has a black raised mark across the middle dividing it into halves. On the top half of one black domino you see six black dots, three black dots on the left side and three black dots on the right side when the domino stands on end.

Tiny shows you that the dots are already hollowed out and need to be filled with white paint. On the lower half of the domino are seven hollow black dots. The seven looks almost like the six except that it has a dot in the center which makes it look like an "H."

Another domino has eight hollow dots in the upper half. The eight looks like a picture frame with black dots all around the edge.

Under the eight is nine. The nine has three rows with three dots in each row. The nine completely fills the lower half of the domino.

The gnome Happy thinks it is a good idea to show you how easy this work really is, so he invites you to sit down on a little stool while he opens a can of white enamel paint. You take a stick and slowly stir it. As you stir, it becomes whiter and whiter until it is pure white. Now you are ready to begin painting.

Happy gives you a paint brush, then reaches into the box and hands you a plain black domino with the little scooped out places waiting to be filled with this very white paint. He says, "Paint the five little hollow dots on the upper half and the three little hollow dots on the lower half."

Now, dip the brush into the pure white enamel paint and put a nice white dot in each corner of the upper half and one dot right in its middle. The lower half is still to be painted.

Again dip your brush into the pure white paint and start on the dot in the lower left-hand corner, next the dot in the middle, then the dot in the upper right-hand corner. Tiny inspects your work and after telling you it is an excellent job, he stands the five-over-three domino on end at the back of the workbench to dry. He remains watching you as you paint the other dominoes: the one-over-nine, the two-over-four, the six-over-seven, and the eight-over-one. These, too, he places at the back of your workbench to dry.

Happy now suggests that it would rest you to stand awhile so you decide to step back to the middle of the shop. With your back to the bench, do you remember the domino you painted first? second? third? fourth?

fifth? Indeed, you do have a good memory! Now you have reached the center of the workshop and turn around facing your bench. There are the dominoes—perfectly clear! They are so clear that you think it would be fun to walk still further back to the opposite wall. They are still perfectly clear. How the white dots you have just painted do stand out against the black of the domino! Again, you read them from the top to the bottom and this is the way it goes: five-over-three, one-over-nine, two-over-four, six-over-seven and eight-over-one. Now you know that all the boys and girls who receive the dominoes you painted for Christmas will be happy because your job was so neatly done.

This trip to toyland is fun and you like all the little gnomes but when you remember Mother and Daddy and all your friends at home, you decide they would be as lonesome for you as you would be for them. So, with a cheerful goodbye and a wave of the hand to all your friends at the North Pole, you start your journey back. And before you know it, you are home again.

TEACHING NOTES FOR PARENTS

1. The child's eyes should be thoroughly sunned and palmed before any game begins and also midway if he seems to tire.
2. Teachers should hold the card at an angle that does not throw a glare into the child's eyes.
3. If the child does not identify the first two or three letters, the distance is too great as a beginning.

4. If the first five or six letters come easily and then mistakes begin, the eyes are tired. Have the child sun and palm again. If no sun is available, a warm light will do.

5. Do not keep the child at the game too long. A ten-minute period is good at first, with frequent short rests.

6. Distance may be stretched as the child's vision improves.

7. If one lesson is in sunshine and the next on a dark day in artificial light, do not attempt to stretch the distance under the less favorable conditions since the letters will be twice as difficult for the child to see.

8. Do not allow the child to stare at the letter or "try to make it out." That will defeat vision. He must catch it "on the wing," so to speak, as he swings from margin to margin of the card. If you notice him "fixing" on the letter or staring at the card, take it away immediately and ask him to close his eyes and count six swings before looking again.

9. Be sure that he breathes regularly and rhythmically. Breath-holding accompanies eyestrain.

10. If one eye is much stronger than the other, it should be covered with a domed patch part of the time in order to let the weaker eye play the game alone. For this, the distance should be much shorter at the beginning than with the two eyes.

11. Watch little children for bad habits of straining, tipping the head to one side, staring, failure to blink often, holding breath while trying to concentrate, and

other manifestations of tension. And watch your own habits, as children are quick to imitate and eyestrain is communicable.

12. Normal children are inveterate readers. If parents only understood that when a child has a distaste for reading it is usually due to eye discomfort! This discomfort probably arises out of difficulty of focusing at the near point, which can be overcome by teaching the child to relax tense nerves. Reading can thus become a pleasure instead of an ordeal. The eye is contrary. Whatever we do consciously with the eye causes just the opposite reaction. Therefore, whatever we *try* to do with the eye is wrong. We must teach the child *not* to try but to *let*. The common belief is that children become nearsighted because of too much reading. Myopia is not due to use of the eyes at the near point but to a strain to see distant objects.

13. Bear in mind the law: "If the eyes rest before they are weary, they will never become exhausted."

FOR THE EYES OF SCHOOL CHILDREN

Many children in the early grades have normal vision; they are able to see the blackboard without difficulty. Most primary teachers, however, will testify that as the first grade year rolls on, more and more children fail to see the blackboard and must have glasses prescribed. This failure of vision is not alone due to the glare on the blackboard from an angle of unfavorable lighting. It has been proved that looking at unfamiliar things—new

words or sentences, strange figures or unfamiliar maps—tends to make eyestrain. This strain can be counteracted, it has been demonstrated, by letting the children read daily, at a distance, some familiar things. That ease with which the eyes take in familiar words, numbers or objects, that ease of looking which means lack of strain can be carried over to unfamiliar things and the normal vision preserved or subnormal vision built up.

THE CALENDAR GAME

One drill by which parents can accomplish this is the calendar game for the primary graders. Little folk love to learn new things, and even though they have not yet had numerals in school, it is easy to teach them the numbers on the calendar mentioned earlier in this book. This calendar, attached to a coat hanger, may be hung at the end of the living room in a good light each morning and mother and child can play the game together with benefit to both.

1. Sun the eyes, peeking at the sparkles that shine through loosely closed eyelids while the child plays elephant and swings from side to side.

2. Mother and child should then sit down and palm for a few minutes, five or ten, according to how rushed the morning. Sometimes the mother can tell a story, sometimes it may be the child's turn to be narrator.

3. Stand within the child's reach of the calendar and, with pointed finger, trace the large numbers, naming each.

4. Step back to the farthest point at which the child can see the numbers and, with pointed finger extended, pretend to trace each number as it is read aloud.

5. To vary the game, one of the small calendars at the foot of the sheet may be read, at an easy distance, in the same way.

6. Hunt all the 2's on the face of the calendar, then all the 5's, etc.

7. Read every other number aloud, the others silently.

8. Read the first number and the last number of each line, the second and the next to the last, the third and the third from the last.

To keep the drill alive, mother and child can make up new steps or games to play with the numbers. It will be surprising how this very simple drill will improve the vision. From week to week, the distance may be stretched, with noticeable improvement both at school and in regular daily use of the eyes.

CHAPTER XI

Advice to Those with Dim Vision

"Thought is the twin of impulse, a delicate combination of habit and impulse being necessary for memory, judgment and sight." *

—JOHN DEWEY

VISION is an impulse. So we say that memory brings vision to failing eyes and, conversely, as eyes gain vision, memory improves.

Light perception is vision. The eye and mind are like a lamp and an electric circuit. Contact must be made. If the eye is too weak to carry the message to the mind, a good mind can be taught to carry the picture to the eye. Either way the contact is made, vision takes place and can be improved. Good vision is but a high degree of light perception, a development of the maximum of power possible to the human eye.

The usual philosophy taught by those who work with blind or near-blind eyes is the philosophy of compensation; that vision is not necessary, that the other senses can be cultivated to compensate for sight.

We who teach the Bates method take the opposite position. If there is light perception and a good mind, more vision can be developed. What degree of improve-

* From *Human Nature and Conduct* (Henry Holt & Co., Inc.).

ment is possible for such eyes depends, of course, on the physical, mental and visual problems of each case. Whatever other factors there may be at work on an eye with dim vision, there is always strain. Strain alone may be sufficient to be the cause of these troubles which start by being functional but end by being organic. Ridding such eyes of strain is, in itself, a great help. Experience has shown that if a person learns to relax the eyes and the nerves properly, his general resistance improves and the body is better able to throw off its troubles. Teaching people with dim sight how to develop their residue of vision by means of relaxation to the highest efficiency possible is therefore a worthwhile project—the aim of this chapter.

GUIDING THEIR STEPS

In helping those with dim sight, friends and relatives do not understand how to be of assistance, eager as they are to aid. A few pointers on how to help the sightless or those with slight vision would undoubtedly be of help.

Often you observe a walking companion seize the arm of his blind charge and start down the street, thrusting forward the one without vision to face the unknown, to pioneer for himself the step down, the hump in the sidewalk, the curb at the crossing. The helpful way would be to offer a guiding arm. Then the one who cannot depend on sight would know by the sense of touch and by motion when his companion steps up, steps down, veers to one side or the other or comes to a stop. As a free agent, he would be able to govern his actions according-

ly, the tactile sense substituting for the lack of sight. It is good practice for such a companion to try walking about with eyes closed among familiar scenes at home. It might be well for you to walk about a friend's home some night without putting on the light just to get the feeling of one with dim vision who enters, unable to see.

In descending a stairway, the attendant should go first, his arm outstretched in front of the blind, his hand firmly grasping the rail; the one with dim vision should follow, one hand on the rail, the other on the attendant's shoulder, eyes straight ahead. Then, every step down is sensed and if a fall should be threatened by dizziness or stumbling, the attendant could thrust the blind person back onto the steps. At worst, he would sit down rather than plunge forward headlong, an accident the attendant would be powerless to prevent if he but grasped his charge by the elbow.

It is good practice for those with dim sight to wear flexible thin-soled shoes so that their feet can feel the way. Let the feet find their way unhampered by looking. Walking is a subconscious function and in the normal person is not interfered with by the eyes. A striking example of this was a personal experience in the country. We had to walk five miles a day over a rough wagon trail in mountainous terrain. We stubbed our toes and bruised our feet, scuffed our boots and turned our ankles, no matter how carefully we watched the sharp rocks and miniature boulders in our path. The daily walk was an ordeal to be dreaded. Conditions changed and we had to walk the five miles on moonless, starlit nights. It was

useless to watch our steps as the road was but a dim glow of a path before us so we ceased trying to guide our feet with vision and let them do their work alone as nature intended. Never once did we stub our toes or turn our ankles during those nightly jaunts, and our eyes and minds were free to enjoy the beauty of the heavens, the wide meadows and the distant hills in starlight.

In crossing a room, those with dim vision should direct their attention waist high for that is where the contours of furniture are most clearly visible. Eyes dim but with sufficient sight to see a chair or table, fix their gaze high and unshifting, hence, suffer many unnecessary bruises.

Before venturing to sit down, one with poor vision should bend over the chair and let head and eyes travel from right to left to locate both arms and both sides of the chair. This prevents sitting beside the chair instead of on it, a frequent accident when but a single chair-arm is located.

ADVICE TO DIM EYES AT WORK

Prepare for the day's work by doing all the physical and mental relaxation drills in Chapters III and IV. If you have light perception, these drills will give you greater possibility of glimpsing motion and shape during the day. If you have no light perception, the ease afforded by these drills to your tense nerves and tight muscles will well reward you.

Watch the motions of your hands as you work. For example, if washing dishes, do not fix the gaze on the

dish and bring washcloth up to it. Instead, follow the motion of the washcloth as it approaches and moves over the dish. Following the motion of the hands breaks the stare. We *must* break the stare habit. Dim eyes stare at the sun, at faces, fix the muscles immobile on the distance while in deep thought and often fall asleep with the eyes in a fixed position and lids tight.

Be sure to have the light from the left rear, shining on your work rather than before your face to dazzle the eyes. Light shining into the eyes, even reflected light, defeats dim vision; thus, at the table, the glare from a white tablecloth will prevent vision of the plate, silver and food. It would be wise to have a large square of black cloth on the place at table, under the plate. This would throw the silver, dishes and their contents into vivid relief.

Do not misunderstand and think this means that sun and light are bad for eyes. Far from bad, sun baths stimulate retinas and bring vision. But when taking sun into the eyes, you should not at the same time be trying to see. You palm after a sunning until the optic nerve absorbs the brightness; then with back toward the light, brightness on your object, you have a chance to develop vision. (Review Chapter III on sunning the eyes.)

Where there are dim eyes, rooms should be kept unusually light. The walls should be light-tinted, the drapery not too heavy or dark and well drawn back, the shades open to allow all possible daylight as an aid to weak vision.

One pupil who developed quite usable sight in the

out-of-doors and in well-lighted rooms complained that she could never show her friends how well she saw because their homes were dark and shaded by broad eaves and encroaching shrubbery. Their parties were candle-lighted and when they took her out to dine, the tearooms were artistic but so poorly illuminated that she could scarcely find her food. The dimmer the vision, the more and brighter light it takes to impress an image on a dull retina.

USE OF EYES IN TRAVELING

When motoring, one often sees a passenger in the front seat with his eyes fixed tensely ahead on the straightaway. This is particularly detrimental to those with dim vision. Unexpected vision may be turned on by sitting erect, head at the top of the spine, and consciously turning the head and the attention from one side of the highway to the other, sweeping the scenery as you ride. Dim eyes tend to fix themselves in rigidity and miss the world that is passing. Learn to shift your vision as you ride or walk.

An elderly woman who groped her way about her home, seemingly in total darkness, loved to motor. To everyone's amazement, as she settled back in the car and the scenery streamed by, she would read large print on billboard after billboard. The relaxation induced by the good light, fresh air, comfort and joy of going places, was aided by the swift motion of the scenery as it passed. This made the eyes shift rapidly and brought her vision—a vivid demonstration of our law that "When the eye

shifts, it sees." The problem is to teach dim eyes to shift.

Teach your eyes to move rapidly. Get a large ball and pass it from left hand to right and back again, following it with your vision by keeping the nose moving with the ball. Soon you will be able to throw it from one hand to the other. Then, throw it up about a foot and catch it in the two cupped hands. Be sure to follow it up and down with your vision.

Dr. Bates discovered that the most relaxing thing for dim or strained eyes to do is to watch kittens or puppies at play—happy spontaneous shifting that holds the interest.

THINKING "SHAPE"

Learn again to think in terms of shape. When people become accustomed to dim vision, they tend to rely entirely on sound and touch and forget the appearance of things, that is, shapes and contours. The mind behind such eyes must be re-educated to think of shape. This is particularly true of print. If people with dim eyes could remember vividly the shapes of letters, before long they might see headlines. A good mental picture drill consists of going over our alphabet with the aid of a friend, if necessary, to reconstruct in memory the shapes of capitals and, when that is accomplished, of lower-case letters, and finally of script. This is essential if the mind is to interpret letters the eye might define. The letters could be printed with the nose (nose drawing) or drawn in the palm of one hand with the pointer finger of the other.

Again, those with dim vision who are relaxing their

eyes should think to look. They have been doing without their sight, letting their other senses compensate. Even when vision comes, the mind does not think to use it; there is no picture developed from the sensitive plate that registered the image, no eye-mind coordination.

I once had a little boy pupil who had been reared in the school for the blind. His vision began to return and was developing encouragingly. I asked one day, "Jimmy, you see so well in the studio now, do you find that your outdoor vision is coming too?" He answered, "I am sure I *could* see better as I go down the street if I would only think to look but, you know, I've been sightless so long, I just never think to look." And so I plead with those who are relaxing their dim eyes, *Please think to look!* You might be surprised.

Remember to breathe! It is a common habit among those with slight vision, just as with those having refractive error, to hold the breath when attempting to see. They will breathe normally at all other times but the moment they wish to see something, they stop breathing or breathe the minimum to keep life in the body while they are looking. Breathing is essential to vision. When you really want to see an object, exhale a long deep breath. The surge of circulation this sends through the eye stimulates the retina and will even thin the cloud in eyes with incipient cataract.

Palm often—for long periods if possible, for a few minutes now and then if long periods are not possible. Blanket the tense eyes in darkness to loosen them. The eye has a tremendous ability to repair itself if given the

opportunity. That opportunity is relaxation achieved first in palming, then maintained during activity. I have seen eyes that have been burned by acid, that have been operated upon, that have collapsed irises or other serious injuries, improve under the influence of relaxation.

Even an imperfect camera, leaking streaks of light, or a camera with a defective lens, can take a picture of a sort if the film is good, a picture which can be developed by a clever photographer to the maximum of perfection possible. So it is with the eye. Imperfect eyes with malformations, injuries in the camera box, and many other defects, if the retina is fair, take a picture of a sort which, with educated and intelligent mental interpretation, can be made out by a good mind. The mind works on the image through memory and imagination, "the power of interpretation depending," as Mr. Huxley explains, "upon the amount, the kind, and the availability of past experiences . . . which exist for us only in memory. Therefore, it is true to say that perception depends on memory . . . and imagination." * When vision is declining, memory begins to fail. As vision rebuilds, memory returns. Those who have reconciled themselves to blindness develop wonderful memory but it is memory acquired by the other senses instead of vision: aural memory, tactile memory, not visual memory. So work on your visual memory, the appearance of things formerly seen.

For the blind or those with dim vision, relaxation makes the sun welcome, frees from pain due to tension, frees from whirling colors and visual hallucinations which are symptoms of tension, and brings peaceful rest.

* From *The Art of Seeing* (Harper & Brothers).

MENTAL PICTURE FOR RELAXATION

People with dim vision or those with no vision whatever, need mental relaxation. Pleasant memory induces this. When the mind is occupied thinking of something beautiful or interesting, tense eyes and nerves relax. The following mental picture, a favorite with many, is to be read to the person palming.

You are sitting in a comfortable chair. In front of you is a white plastic track, an inch wide. It forms a half circle before you, slightly raised at the right end and, at the left, tips with a little runway down into a silver jewel case. At your right, is a crystal bowl filled with marble-like jewels, exquisitely cut. There is a rich ruby ball, a green ball of jade, a white diamond ball that glistens, an onyx ball of shiny black, an amethyst ball of purple, an emerald ball of richest green, a topaz ball of amber hue, a sapphire ball with buried star that flashes in the light, an opal ball of varied colors, flashing red or green or smoky blue, and a highly polished ball of purest ivory.

Now reach into the crystal bowl and select a jewel-ball. Turn it around in your fingers so that its many brilliant facets catch the light and flash its colors to you. Put it on the plastic runway and start it rolling. It follows the circular track before you, gathering momentum as it progresses, finally sliding down the little runway into the jewel box at your left.

Do this with each ball, enjoying the beauty of each rich color: the ruby, the jade, diamond, onyx, amethyst, emerald, topaz, sapphire, opal and ivory. Watch each ball's motion carefully as it revolves along its circular

path around the plastic track, down the little chute and into the jewel box.

DOMINO GAME FOR THOSE WITH SOME VISION

In preparation, take the sun, swing and palm as described in earlier chapters of this book.

1. Sit with your back to the sunshine which should come over your left shoulder. Have a box of large black dominoes that read to double nine, as these are more interesting than those which go only to double six. Put the dominoes on a table at your right. Place the empty box top at your left. Now you are ready to begin.

2. Take a domino out of the box at your right. Close your eyes gently. Run your fingertips over the dots in one half, pass the black ridge in the middle of the domino to the dots on the other half. Now you have your mental picture of the pattern.

3. With the eyes still closed, gently swing the head from side to side thinking of the dots as very white against the very black domino, on one half, then the other.

4. Draw a deep breath and, continuing your swing, open your eyes. Pass your vision from one half of the domino to the other half as you hold it in the sunlight and point your nose where you are looking. Remembering your mental picture of the pattern, hold it as close to your eyes as you wish. Be sure to breathe.

5. Do not be concerned if it does not come out or if

you do not see it well. Instead, close your eyes, maintaining a short slow headswing from side to side and remember again the pattern you felt when you touched each side of the domino with your fingertips.

6. Open the eyes again with a deep breath and point your nose (which is directing your attention) to one half, then to the other. Do not persist or insist on seeing it well. Take what comes at first and the next time will be better.

7. Lay aside the domino in the box cover at your left and pick up another from the box at your right. Again, close your eyes. Run your fingers over the dots in each half. Swing your head four swings and think of the dots as very white on ebony black.

8. Open the eyes and point your nose from one half to the other as the sun shines on the domino.

Do only six or eight dominoes on your first lesson unless they come into view readily. If you do this drill with relaxation, you will have improved vision each time. Sun and palm after your workout. When, lesson by lesson, you notice improvement, you can hold the dominoes increasingly farther from your face and later have someone else hold them.

DOMINO GAME FOR THOSE WITH NO LIGHT PERCEPTION

The same domino game can be done mentally to bring great relaxation to the eyes and mind. First, the dominoes must be studied by a sense of touch until their pat-

terns are familiar. Then, while the eyes are palmed, the hand is imagined to be picking up a domino from the box at the right and, in memory, a pattern is read such as three on one side, nine on the other. Then, in imagination, the domino is dropped into the empty box at the left and a new domino is reached for.

The underlying reason for this mental game is that memory relaxes the mind and nerves and starts even sightless eyes shifting which brings ease, comfort and surcease from pain.

CHAPTER XII

Color Blindness

"We can't believe our eyes. We live in a world made up of optical illusions. We think we see colors, but they exist only in our brains, we think things are beautiful only if we have seen them—or something like them—before." *

—ANDRÉ GIRARD

COLOR blindness was reported, according to official statistics, as the cause for rejection of 15 per cent of the men applying for the Navy, 12 per cent for the Army and 5 per cent for the Air Corps. These eager, well-qualified young men were thus deprived of the service of their choice. In many cities, firemen and policemen must pass color tests as must railroad employees. Therefore, this subject is of wide importance.

We state from experience that color can be taught to color-blind retinal nerves in eyes otherwise normal. This has been done by relaxing the mind, the eyes and the nerves, and then educating the eye to differentiate color sensations instead of interpreting everything as light or dark. Color sensitivity can be developed by educating the nerve ends of the retina to react to the different wave lengths of the colors in the spectrum. We find that few persons with good vision are truly color-blind; that is,

* Reprinted from *Vogue*. Copyright, 1945, The Condé Nast Publications, Inc.

see everything as black, white or gray. Most color-blind eyes, because of decentralization or color ignorance, misinterpret or interchange certain colors, most frequently *reds, greens and browns*.

COLOR IN NORMAL RETINAL NERVES

Scientists teach us that, in evolution, all human beings were originally color-blind. The retinal nerves had not been developed to notice differences in the color rays thrown off by different objects. Through the ages, retinal sensitivity to color was acquired, just as the ear was refined for music instead of being tuned merely to the rhythm of the drumbeat and the tom-tom. As the retina developed, retinal nerves which receive light rays learned to distinguish between the color radiations of red, yellow and blue. Scientists claim that one layer of cells learned to sort out the colors and pass on the signals to another layer of cells which could do more specific color sorting. Then the brain, by means of a different layer of ganglion cells, learned to make sense of the sorting and rearrangement, and the mind acquired its conception of the richness in the world about us.

The color training of primitive man through the ages can be duplicated in the training of undeveloped retinal nerves of sophisticated man today. In this education color, its composition and the complementary relation of one color to another must be understood. The eye must actually experience the sensation of seeing ordinary water-color paints mixed and of watching red plus yel-

low turn into orange, and yellow plus blue turn into green, etc.

Again, the normal eye must understand the effect of different lighting on a given color to interpret color correctly; for example, how blue, red and violet look in yellowish light. Interior decorators understand this. Sufficient light is necessary to enable even normal eyes to differentiate color. All eyes are color-blind in the dark or near-dark, there being a rather low level of illumination at which everybody becomes color-blind. The world turns gray in deep twilight or on a moonlit night.

Also, the influence of fatigue on color perception is important; color exhaustion deadens the sensitivity to any color. One man who worked all day over a vat of blue-green silver-plating fluid had retinal nerves deadened by exhaustion to anything on the blue-green side of the spectrum. He called everything *red*, the complement of green. We advised that he hang a vivid red background beyond the vat and rest his eyes on it frequently. His vision for green and blue returned.

COLOR IN SUBNORMAL EYES

Eyes with numb or unused retinal nerves notice the improvement of the color sense as the general vision develops through training in relaxed activity. Any teacher with the skill to teach perfect fusion and focus can, when that is accomplished, then sensitize the retinal nerves to the intricate gradation of hue, and can teach the mind accurately to interpret the wave length stimulæ.

SERVICEMEN'S EYES

Many of the flyers who came to us, rejected because of color blindness, could readily recognize the colors of the spectrum: red, orange, yellow, green, blue, violet. Some were even skilled in painting or poster work but still failed their tests on the Ishi Hari charts. Psychologists are of the opinion, and we agree, that the Ishi Hari and the German counterpart, the Stilling charts, are not true tests of color perception.

Could it be that our enemies struck their first blow at our armed forces by foisting upon our country this faulty method of testing for color?

"These charts," writes Dr. Robert D. Loken, eminent psychologist of the University of California, "have been responsible for letting in [to the service] many men of defective vision and barring as many more who should be inducted." Dr. Loken and his associate, Dr. Dunlap, claim that these charts merely illustrate *brightness contrast* between numbers and backgrounds, *not* the difference in hue, and that the outlines can be perceived if the contrast is sharp enough, regardless of color perception. They advise sensitization of retinal nerves and color education, then tests on standardized colored yarns. Professor Forrest Lee Dinmick of Hobart College, Geneva, New York, concurs.

Doctors Dunlap and Loken also advise large doses of vitamin A to improve color sensitivity of retinal nerves. They teach that vitamin A "produces growth and development of all protective tissues including membranes

of the alimentary canal, skin and delicate tissue-linings of nose, throat and eyes." The retina would benefit, being an inner lining of the eye.

They say it is logical to assume that vitamin A affects the cones of the retina (the most sensitive lining of the eye), which scientists agree control color vision.

SELF-HELP IN COLOR TRAINING

1. Practice earnestly the drills in general physical, mental and visual relaxation in the first part of the book, accenting sunning, palming and swinging.

2. Work in daylight rather than artificial light. Use white paper and a box of water-color paints with the three primary colors: red, yellow and blue. Ask a friend with good color perception to help you paint three parallel bands of prime red, prime yellow and prime blue. Paint these bands about two inches wide and leave two inches of white paper space between them. These are the three primary colors which exist in nature and which you cannot mix by combining any other colors. Visit with them. Get the feeling of difference. Label them in pencil. After the primes have thoroughly dried, mix combinations of equal parts of red and yellow which will make orange, of blue and yellow which will be green, and of red and blue which makes violet—the three secondary colors. Paint each of these three combinations—orange, green, violet—as two-inch bands between the three primary colors. When these colors dry, cut a two-inch square off the end of each band and lay these in the

order of the rainbow—red, orange, yellow, green, blue, violet. Label them and number them on the backs. Carry them in an envelope in your pocket. Get them out frequently and lay them in order. Soon, you will not have to look at the name or number on the back; you will just *feel* how and where they should lie.

3. Next, search for colored pictures in magazines for more intense examples of each of your six squares, deeper examples of the same colors. Cut out these bits of color and label them. Have someone verify for you.

4. Pick things in nature to match each color square: red rose, orange fruit, yellow butter, green grass, blue sky, violet eggplant.

5. Window-shop with a colorwise friend before florists' shops and fruit and vegetable stands, pointing out and naming different colors.

6. Do the same in front of department-store windows. Notice and try to analyze and name the colors in each costume displayed.

7. Once color-educated, in preparation for the Ishi Hari test, you really should have a lesson from an art instructor to enable you to recognize the subtlety of the tertiary colors of which those tricky dots are composed. The charts are confusing to the unwary eye which is attracted to light and dark instead of to the contrasts in color. Being advised of this, determine the color of the background on which the numbers are printed and pay attention only to the background color, even if sometimes light or sometimes dark, and the numbers will

stand out in contrast. Breathe deeply and blink often. Travel fast over each color plate. Glance away between pages. Close your eyes before looking again. And remember that *fear* of not passing the test may turn off your vision. So relax as you learned to do in the earlier part of this book.

CHAPTER XIII

The Bates Work in the War Effort

"Since errors of refraction are curable, no soldier should be allowed to wear glasses . . . (and in the event of war) everyone who goes to the front in whatever capacity, from Generals and Admirals down to the ambulance drivers, should understand palming." *

—WILLIAM H. BATES, M.D.

DURING World War II men in the service bitterly felt the need of vision, not glasses. Often they spent their furloughs and leaves in vision-building when fortunate enough to have heard of our eye education.

One lad wearing thick lenses, home on a few weeks leave, appealed frantically for help in seeing. He declared the glasses useless to him in the jungle as the constant perspiration kept them so fog-bound that he could not see through, yet was blind without them. He related how a Japanese sniper would have killed him had it not been for a buddy, quick of vision, who picked off the enemy first. He was working his way down a jungle trail with his patrol, glasses in his hand, when a sniper began plugging at them. The other boys scattered to cover at once. He dropped and lay still in the trail, unable to see from which direction the attack was coming, his vision

* From *Better Eyesight Without Glasses* (Henry Holt & Co., Inc.).

too poor, in any event, to risk leaving the trail. "Please help me to see before they send me back," he pleaded. "I need eyes, not glasses, to go back there."

Another man, a paratrooper, was petrified with terror every jump for fear his glasses would break on landing. Though he always taped them securely to his face he had broken them several times in practice jumps. He lived in fear of the same thing happening in the war theater where, with broken lenses, he could not have told friend from foe.

Many army men reported that donning gas masks repeatedly broke their glasses.

Whenever boys in a camp or on shipboard wrote asking help, we always sent a book of instructions, knowing that if they would earnestly practice relaxation, they could in some degree improve their sight.

We feel that we did a great service in aiding our fighting men to increase their visual power. The boys who went to war needed vision. Our experience in training them to overcome their difficulties convinced us, as never before, that vision could be quickly and effectively normalized. They came with such intensity of desire, having but one purpose in mind, that they worked faithfully and sincerely with their teachers. We were repeatedly amazed at the rapid progress they made. Often, they had but a few days in which to make the requirements of visual acuity for the Navy, Air Corps or Marines. No one can honestly date the body. Sometimes it responds quickly, sometimes more slowly. We could never make promises on how great an improvement could be ob-

tained in a few days. But the boys cooperated to the fullest degree and followed a routine which, in many cases, enabled them to pass their tests.

An example of a "hurry up" routine is the following:

7:00— 8:00 Home practice on relaxation
drills.

8:00— 8:30 Breakfast.

8:30—10:00 Vision-building lesson.

10:00—11:00 Tennis in sunshine.

11:00— 1:00 Palming, rest and lunch.

1:00— 2:00 Free period.

2:00— 3:30 Vision-building lesson.

3:30— 4:30 Nap or swim.

4:30— 7:30 Rest and dinner.

7:30 Motion-picture show and early to
bed

Following are a few histories from our records which will explain some of the problems with which the boys came to us. These case histories also illustrate how the Bates method helped the boys pass the tests for distance, color and depth perception and thus enter the service of their choice.

One young man who had been rejected several times by the Air Corps because of deficient vision, normalized his eyes by the Bates work, passed all tests, and joined the Flying Tigers in Burma where he became flight leader. He returned with ten Japanese planes to his credit. After that, his score continued to mount as did his rank; he eventually became a lieutenant-colonel.

Another lad had built his vision to flying caliber and passed his Air Corps test with ease. He returned from the Pacific with high honors. "How did your eyes hold up in strain of combat?" he was asked. "Grand," was the reply. "I could see them coming and see them first!" It stands to reason that just as the trained vocal chords of an opera singer maintain their relaxation under the strain of an opening concert better than those of the amateur would, such well-trained eyes would hold up under combat stress better than untrained eyes.

Normal visual development by competent training in the Bates method can result in permanent improvement, barring illness or accident. The reason for this is that the Bates system relies on the establishment deep in the subconscious mind of good visual habits of relaxed seeing. Both good and bad habits last unless purposely uprooted. Exercises, however, cannot be depended upon to establish habit. Many persons who have temporarily improved their vision to test-passing caliber by exercise, report that their eyesight has gradually declined when exercises were discontinued.

In our training, as mentioned earlier, we give no exercises. Our work is strictly the instillation of habits of relaxed functioning of the eyes. It takes persistent application and devoted attention to uproot a bad habit and replace it with a good one.

Another of our Bates boys, who trained commandos, discovered that archery, following the flight of an arrow while keeping relaxed, helped him not only to perfect focus but to stretch his vision to normal or beyond. He

improved the vision of many of the commandos he trained by this method.

One prominent Navy commander with many decorations acknowledges gratitude to the relaxation method of eye training. His nerves and health had been wrecked by the strain of Pearl Harbor and many battles in the early phases of the war in the South Pacific. The Navy doctors claimed that his formerly normal vision had been cut down, one eye having dropped to 3/200 in power. They listed him for retirement but, on his urgent request, granted a six weeks' leave during which he rebuilt his vision under instruction of a Bates teacher. At the end of this period, the gain was so great that he was given shore duty on Treasure Island. Continuing his eye training, this officer in nine months' time passed his Navy test with 20/20 vision.

He returned to the South Pacific on heavy duty and wrote his teacher that "Periscope hunting is no longer torture." The glare on the bridge of his ship ceased to be punishment though conditions were equally strenuous. He taught his men eye relaxation and they loved it, and he took dark glasses off his entire command.

One boy of seventeen, with terribly crossed eyes, had worn heavy lenses all his life. He worked near the airfield just to be close to planes and pilots because of his great though hopeless passion for flying. Persuaded by his professor-brother to take some eye lessons he commented that he was "kidding himself that some day he would have Air Corps sight." He put his soul into his relaxation drills, both during and between lessons; and to his amaze-

ment in three months' time he passed the flight test with 20/20 vision, straight eyes and depth perception. He became a pilot with the armed forces overseas.

One captain in the Merchant Marine had been for many months under such heavy strain in South Pacific waters that his vision had deteriorated to the extent where he feared he would lose his command. He confided his trouble to a friend who understood eye training through relaxation. There was only time for him to learn three things—sunning, palming and swinging—before he shipped out again. The captain was a methodical man, thorough in anything he undertook, and he was desperately in earnest. At sea he had ample opportunity to sun his eyes and considerable time for palming, which he did for hours at a stretch. Also he did the Elephant Swing, sometimes 1500 times at a doing. He knew only these three remedies but made use of them endlessly. The result was that he passed his next eye examination with an easy 20/20 in each eye.

A young wireless operator on shipboard in the South Pacific had an unused eye which was badly off focus. He was taught the Elephant Swing and given a book on the Bates method. While at sea, he sun-bathed his eyes, palmed them often and, wearing his earphones so that he could stand in the doorway of the radio room yet be on duty, each day swung for hours at a time (the Elephant Swing), looking out over the horizon. Sometimes, he covered the strong eye and looked to sea with the weak one. As weeks passed, he realized that he was seeing better and was feeling more relaxed. Suddenly, to

his amazement, he discovered that he had achieved depth perception for the first time in his life. Unknown to him, his unused eye had developed and fusion had taken place. He was seeing the same point with the two eyes at the same time, a totally new experience.

In the Japanese prison camps, the knowledge of the relaxation methods helped tide over the nerves and vision of many persons. These people tried eagerly to aid other sufferers. In one large Japanese prison camp, several who had had the eye training in the States gathered together others of similar experience. They pooled their knowledge, each offering what he could remember of the work so that they could help their fellow sufferers.

On the humorous side, one man who determined to make eye training his profession once hostilities were over, made a pocketful of change on the train trip east with his fellow servicemen by wagering each chap wearing glasses that he could improve his vision a certain per cent in a certain number of minutes. Only once did he lose his bet; it took ten minutes longer! His method follows.

HOW A G.I. IMPROVED HIS SIGHT IN 10 MINUTES

1. The demonstrator fastened a newspaper on the wall ten feet in front of the contestant. The paper contained headlines and captions of many different sizes.

2. He let the contestant remove his glasses and read the smallest print he could decipher with the naked eye.

3. Next, the G.I. was taught the sense of motion by the Elephant Swing.

4. If the sun was available, he was taught to take sun on his closed eyelids.

5. He was taught to palm and, during the palming period, was entertained by pleasant memory pictures.

6. He was then asked to take a big breath, lower his hands and read fast everything he could see.

The relaxation that this procedure induced invariably brought improved vision. The demonstrator carefully explained that this improvement could be made permanent if the routine was practiced diligently until relaxed use of the eyes became a constant habit.

Many wives and sweethearts of service men worked hard to improve their vision as a surprise for the men after the war. One bride who had normalized her eyesight met her husband at the train, eyes shining, anticipating his thrill at her appearance without glasses. She noticed, at once, that his glasses were missing. "Where are your glasses?" she asked. "I don't need them anymore," he boasted. "I read a book in the jungles and did the stunts. Thought I'd surprise you!"

A sea captain who improved his vision by the Bates method developed super-normal sight. In the mid-Pacific, he received the report: Smoke off the port bow. He rushed up to the bridge and swept the horizon with his naked eye. "There," as he tells it, "were two mosquito hairs of a ship silhouetted against the sky." And it came to him: Oil tanker heading east. His first mate, an ex-

lawyer, was peering through seven-power binoculars. His second mate strained through six-power lenses. Neither could see a thing and declared the captain was spoofing. Fifteen minutes later, both mates could see the ship through their binoculars but declared it a freighter heading west. As the ships drew closer and both officers could see that the captain was right, one said he must have been psychic. The other accused him of hiding a radiogram with the data in his pocket.

DRILL FOR SERVICEMEN. To Improve Distance Vision

1. Prepare for this drill by relaxing the eyes in sun or light and by palming for a few minutes.
2. Take the calendar from the back of this book and fasten it on a coat hanger. Hang it in a good light at eye level. Now, take a standing position far enough away from the calendar so that the numbers are separate but still not clear.
3. Start the Elephant Swing past the calendar, moving head, eyes and body far to one side, then far to the other, not looking at anything definitely. The calendar will seem to move by as you pass first one way, then the other.
4. Now, keeping your sway rhythmic, shorten your swing from two feet on one side of the calendar to two feet on the other side. Let the top edge of the calendar pass just *below* your line of vision so that you do not actually look at it. The calendar moves but two feet to

the right and two feet to the left. (If you have difficulty imagining this motion, close your eyes for a moment as you swing and the motion will come more easily and will hold over when the eyes are opened.)

5. Shorten the swing to one foot each side of the calendar, then to five inches, then to one inch or less, always keeping the top edge in rhythmic motion from side to side. (Remember to breathe throughout this drill and do a few rest swings with eyes closed, now and then, thinking motion as you swing.)

6. When the calendar has a minimum of motion from side to side, take a deep breath and flash down to the numbers. They will clear.

7. Practice this drill for fifteen minutes each day.

Though the Bates method was of considerable help to the armed forces in fighting the war, Dr. Bates's great gift was to the men who returned nerve-racked, shell-shocked, and with dim or damaged eyes. To the hopelessly blind the system offered easement and surcease from tension, since even blinded eyes are still under strain. To those who returned with only light perception, this method could offer *some* improvement; how much of course depended on the individual case. Even so-called "guide vision," enabling a person to avoid the furniture and find the doorknob would be a great blessing to such a man. To the thousands with frantic nerves and eyes straining off focus, headaches and sleeplessness, the gift of relaxation offered a return to the road of normal liv-

ing. Many practicing physicians who understand the technique of relaxation recommend these teachings.

The great future of those who teach the Bates method is in rehabilitation work. To this goal the Bates teachers are dedicating their efforts.

CHAPTER XIV

Relaxation and Deafness

"Having eyes, see ye not and having ears, hear ye not and do you not remember."

—MARK 8:18

IT MAY seem strange to include a chapter on hearing in a book devoted to vision, unless the close relationship between seeing and hearing is understood.

All the special senses work together—seeing, hearing, smelling, tasting, and touching. If the nerves governing one of these special senses are tense, all are tense—if relaxed, all are relaxed. We who teach eye relaxation always notice that, as we build vision, the hearing becomes more acute. We have found also that if the pupil comes with defective hearing, it is much more difficult to relax the eyes because of the additional tenseness in the strain to listen. The terrific effort of deaf ears to decipher sounds in conversation holds back the development of vision. Again, if a person is constantly turning a better ear to catch your words, he is at the same time pulling his eyes off focus, which increases eye strain. Sometimes we play sweet, soft music to relax the auditory nerves, while the pupils use their eyes. Then the vision comes more quickly.

What is true of hearing, is true of the other special senses. I once worked with the dim eyes of a little four-

year old girl. I gave her a piece of brightly colored velvet to stroke. The tactile nerves, giving a pleasing sense of velvet smoothness, combined with the memory of the bright color, enabled this child to relax her eyes and develop her vision.

Often we give a bit of candy to the children as they read their sentences. The pleasant sensation of taste relaxes and improves the sense of sight.

Consequently in our studio, we always give some instruction in relaxed hearing to go with eye relaxation. This we are able to do because ears respond to relaxation, just as do eyes. Rest and relaxation stimulate nerves. Palming the eyes stimulates the optic nerve. Palming the ears stimulates the auditory nerve. As the hearing improves and becomes less effortful, so the vision develops more rapidly.

As you use the eye exercises in this book, work occasionally with the ear exercises too. You may find that both contribute to the improvement of your eyesight.

MECHANICS OF SOUND AND HEARING

Sound is a vibration due to motion in the air, in liquids, in solids. It is believed that insects record the highest sound vibrations. Bats, it has been estimated, hear supersonic vibrations, one-millionth of a vibration more than the human ear can detect. And it is on record that through bone conduction of the skull a boy with no hearing apparatus learned to receive and interpret vibrations of sound to the equivalent of eighty-five per cent of normal hearing.

There are two sorts of deafness:

1. Conduction deafness. Interference of the vibrations to the Organ of Corti, the sensitive plate of the ear.

2. Nerve deafness. Failure of the Organ of Corti to carry the vibration it receives to the brain; hence no sensation of hearing can take place.

There are hearing instruments built to remedy conduction deafness but, with education, a person can be taught to use and develop even dim hearing. With nerve deafness, the Organ of Corti may be actually stimulated by relaxation of those nerves.

NERVE STRAIN IN HEARING

Both poor vision and poor hearing make tense nerves. Therefore, each needs relaxation as one defect increases the other. Just as strained eyes are sensitive to bright lights, so strained ears are supersensitive to loud noises and recoil from them. Sounds that do not bother normal ears *do* bother the defective ear because it hears so many sounds, all distorted, confusing and irritating. Hence, ears need quiet and rest periods just as eyes need the darkness of palming.

Some ears strain more in high registers, others more in low. All ears strain on *strange* sounds. We must relax the aural nerves so that strain will leave for both high and low registers.

According to Dr. Bates, all the special senses: seeing, tasting, smelling, hearing, touching, are on the same ganglion network, and react simultaneously to relaxation

or tension: you relax one, you relax all; you tense one and you tighten all.

Therefore, defective ears need all the other special senses built up because all are dulled by strain.

The first and easiest way for one who is hard of hearing to stop straining is to learn to play, almost a lost art today.

THE MENTAL SIDE OF HEARING

To interpret sight and sound, the brain needs but a hint from the signals of eye and ear. Generally, sounds coming over imperfect hearing nerve paths can be deciphered and developed by the trained mind which fills in parts of the pattern of familiar speech to interpret the meaning. It is this interpretation of the vibrations registered that needs speeding.

We have all had the experience when hearing someone speak, of calling, "What? I didn't hear!" but before the remark can be repeated, the brain has interpreted and we know what was said.

Often, dull ears can be trained to adapt themselves to the distortion of speech even though many of its vibration frequencies have been lost due to the ear's inability to perceive them. Even though ears are unable to perceive all the vibration frequencies of speech, they can be educated to adapt themselves to these distortions. Then by stimulation of the process of ear-mind coordination, the aural centers of the brain can be increased in sensitivity thus training the ears to distinguish the basic sound

elements from the superfluous overtones that are so confusing.

STEPS TO IMPROVE HEARING

Ear training consists of two things: first, stimulation of the aural nerves by relaxation, that is, by the total exclusion of *all* sound, ear-palming; second, stimulation of the mental interpretation of the vibrations registered. This means the evocation of mental images or memory and imagination of what the sound *should* be like. For example; if the ear is too deaf to hear the tick of a clock held against it, let someone tap the rhythm of the ticking on the head above the ear to give the mental image. This gives the brain the pattern to aid the ear.

Check each ear on a watch or clock to see how well or how poorly you hear before training. Palm your ears and remember sounds. Just as memory of familiar things seen improves vision, so memory of sounds formerly heard improves hearing.

MENTAL PICTURES OF SOUND

Did you ever see a grandfather clock? Remember the sound of the solemn tick-tock at each pendulum swing—a low, sharp, fine click in perfect timing?

Can you recall the ringing of church bells on a clear Easter morning? Were there bells of two churches sounding different tones and rhythms, sometimes alternately, sometimes clanging at the same moment in musical dissonance? Or maybe they were chimes and intoned a phrase of some hymn.

Did you ever stand beside a waterfall and watch and listen to the water pouring over the rocks and splashing into the depths below?

Did you ever lean on a farmyard fence in the evening and listen to the sleepy sounds of the chickens, of the doves, the lowing of the cows with a distant bell and tinkle, and the far-off bark of a dog?

There are so many sounds to think about: the rattle of dry leaves as you walk through the woods in the autumn, the rustle of the silver maple or quaking aspens before a rain, the brisk whirr of a lawn mower cutting summer lawns. Now, *you* think of some sounds. You will find it entertaining and it does stimulate hearing.

The aural nerves are stimulated by the rest derived from palming. The nerve centers in the brain that interpret sound are enlivened and ready to act when a sound approaches.

Take down your hands and again listen to the watch or clock. You will find your hearing more acute.

PROCEDURE

It would be most advantageous to have a few lessons from a teacher skilled in aural training. You can, however, do much for yourself.

1. Measure to the best of your ability on a watch or clock or piano tone, the aural acuity of power of each ear. Record the date and farthest distance at which you can hear it.

2. Indulge in all the relaxing drills described for the

eyes in the earlier part of the book. These are just as good for the ears.

3. Let the hot sunshine into the aural cavity, holding the ear at an angle to allow the warm healing rays to penetrate as deeply as possible. If there is no sun, use a strong bright light.

4. Palm the ears thoroughly, fitting the hands closely enough to form a vacuum when they are pulled away. Fifteen-minute, ear-palming periods can be indulged in as you read with a book propped up before you.

5. Before palming listen to a clock, watch or piano tone. Afterward, uncover one ear and listen to the same sound. See if the intensity of the vibration or the distance has improved. If the aural nerves are alive, most ears can detect an improvement.

These are simple introductory steps toward improved hearing. The student's own ingenuity can devise many other sounds and ways of using and extending the power to hear and to interpret sound vibrations. Many have improved their hearing ability by these directions alone, practicing regularly and daily. A teacher skilled in this method of ear training would of course give many short cuts and aid greatly but many persons who were hard of hearing have reported better hearing ability without further help.

CHAPTER XV

Relaxation for Normal Living

"In the process of seeing, mind, eyes and nervous system are intimately associated to form a single whole. Anything which affects one element in this whole exercises an influence upon the other elements." *

—ALDOUS HUXLEY

RELAXATION is so strictly the condition of the normal human being that the moment it is reduced or lost and tension takes its place, many evils beset us. Tension can cause ill health, bad emotional conditions, insomnia, eye trouble, pain and even paralysis.

Dr. Bates discovered that even the normal eye is not normal all the time but is affected by the condition of health, by fatigue and particularly by emotions. Emotions can be lowered to the point of despondency when the eyes are tense. Irritations that would never be noticed in a state of relaxation bother and harass a tense-eyed person. An oriental philosopher once said, "Western man grows wrinkled because he thinks through his facial muscles instead of with his memory archives at the back of his head."

You may have noticed middle-aged men and women in crowds with strained, staring eyes and scowling, un-

* From *The Art of Seeing* (Harper & Brothers).

pleasant faces and you may have thought to yourself, "I'm glad I don't have to know those people." Chances are it is only tension that strains their eyes, snarls their faces and makes them look and feel unpleasant. At heart, they may be warm and kindly with sweet affable natures. For such, the instillation of relaxation smoothes out life. Matters and events that once upset them will scarcely be noticed and the frantic expressions and puckered faces will relax to reflect a normal calm with which to meet daily problems. Relaxation cannot, of course, eliminate troubles but it can aid in reducing mountains to molehills. When the nerves and emotions are eased, visual difficulties are alleviated, for the eyes are direct barometers of the emotions; eyes see poorly if mind and heart are upset, vision improves when all is calm within.

Hence, the emotional and beautifying value of relaxed living is inestimable. Youngsters with lackluster eyes and "dead pan" expressions come alive as relaxation restores their sight and liberates their repressions. Personalities blossom when eyes shine and sparkle with vision.

CURE FOR INSOMNIA

Relaxation is the antidote for insomnia. When eyes, minds and bodies attain relaxation, insomnia of years' standing will give way and the powerful drugs upon which so many persons these days are dependent become no longer necessary. Drug-induced sleep is always unsatisfactory but insomnia sufferers put up with it, knowing no better way. The quality of sleep is important. One can sleep tightly—so hard that it is an ordeal and one

awakens worn out with the labor of sleeping. Many strain their eyes more in their sleeping than in their waking hours. Some persons awaken each morning with a tension headache. It is vital to fall asleep with mind and eyes relaxed, the two being so highly synchronized. If you fall asleep worrying, thus tightening mind and eyes, you will strain all night and have pain or exhaustion and poor vision by dawn. So prepare for restful sleep. Do your hundred Elephant Swings before retiring. Then put yourself to sleep palming with a pleasant mental picture or your favorite mental drill, particularly if your days are rushed. Then, during sleeping hours at least, respite will come.

Pain responds to mental and physical relaxation. Headaches of long standing that have worn a pain groove into the brain can, with eye-mind relaxation, gradually be eased away and the pain pattern erased. Pain is congestion. Congestion is tightness or tension. Psychologists teach us that any sensation is intensified by mental focus or attention. If, therefore, one relaxes the body so that the circulation can be increased to do away with congestion, and if the mind can be arbitrarily focused, even partially or temporarily, on something else such as a mental drill, the pain then has a chance to dissipate and the body has more opportunity to normalize itself.

Headaches often come from bad habits in the use of the eyes. One business executive reported that his most severe headaches and his greatest eye discomfort came from trying to hold his client's attention by staring him in the eye. In the first lesson, we taught him how to look all over his client's face, shifting rapidly from one eye to

the other. Thereafter, interviews and conversations ceased to annoy him and became a pleasure. Test the difference for yourself. The shift of the eye is so slight that it registers on your observer merely as an attractive sparkle. Early in this book, you learned to swing a black dot. In conversation, swing two black dots, the pupils in the eyes of the person to whom you talk.

When the body becomes inordinately tense, the nerves may tighten to the degree that they can no longer command the muscles they should control. In such cases of tension, "ticks" or even facial paralysis may torture the sufferers. For such people mental and physical relaxation may completely solve the problem.

WHEN RELAXATION HELPED

I once worked with an opera singer who possessed a golden voice. Though she had been shortsighted for years, she was delighted with her eye training and the rapid improvement of her distance vision. One night after a prolonged and important rehearsal disturbed by controversy with the manager, her vocal chords were suddenly stricken and she could not utter a sound. She had no cold or laryngitis, her health was excellent but she could not make a sound above a whisper. Specialists declared that her vocal chords were paralyzed. The girl was frantic with the fear that her career might be at an end. Even though she was so emotionally upset, I coaxed her to take her eye lesson as usual. She became deeply absorbed in seeing and almost forgot her three-day tragedy, despite the fact that she had to whisper. She began to

relax, her vision opened up better than ever and suddenly a flash of normal sight came through on the words she was reading with such vividness that she cried aloud, " 'Pretty town'—I saw those words *perfectly*—as clear as with binoculars " Then she clutched her throat in amazement. "I can speak again!"

In relaxing her mind, she had relaxed all the nerves of her body including those governing the vocal chords which, being strong, healthy and well-trained, were as good as ever. She sang a few scales before leaving the studio, then faced her final rehearsal with power and calm and appeared before her audience in better voice than ever before. Now, since she understands that tension caused the paralysis of her vocal chords, she knows how to keep them relaxed to prevent the recurrence of such a devastating experience.

When the mind and one of the special senses become thoroughly relaxed, all the special senses relax in sympathy, since (as Dr. Bates taught us) all the special senses are hooked up on the same ganglion network. Thus, when vision comes through, hearing improves as does the sense of smell. We have had astounding examples of the sense of smell awakening in undeveloped and unused olfactory nerves simultaneously with eye improvement.

Since relaxation is the normal state, when nerves and special senses over the entire body relax, the vital organs also relax and the general health improves. Pupils often report blood pressure to be more nearly normal, hearts to be better behaved, digestive tracts to be functioning

well for the first time in years; in short, they experience a general state of better health and better being.

AID TO CLEAR THINKING

Clear creative thinking can take place only when the mind is relaxed. Writers and artists complain of stalemates, periods of stagnation in their power to compose. These seeming "blackouts" are due to mental strain or tensions. These periods will pass quickly if a person understands how to induce relaxation. Once he learns how to maintain it, such stalemates will no longer beset him. People absorbed in problems of business, once they learn to maintain their relaxation, discover that their habits of thought more perfectly coordinate, thus allowing the mind to use its store of knowledge and wisdom. When the eyestrain and mental strain which cause refractive error and confusion are eliminated, the mind can reign supreme.

Tension can wreck a human being. Relaxation is the restorative. Once good habits of relaxed living become subconscious, life flows more smoothly, friends are made more easily, antagonists are neither so many nor so annoying, and success becomes a possibility.

One pretty girl receptionist who had come to us with one unused eye and great eyestrain, improved her vision and blossomed in personality under the influence of the relaxation she was taught to maintain. She reported that formerly she had been treated with mere politeness by the men she met in business; now she has frequent luncheon dates and enjoys many other courtesies.

Vision is a pleasure. Those who have never had the experience of poor vision or the threat of blindness do not realize what a joy it is to see just the simple, ordinary items of life which most of us take so for granted that they are never even noticed.

I was working with a girl who had been reared in a school for the blind. During her lessons, as her vision returned, the studio rang with her laughter, so great was her joy at seeing even such simple things as single words or letters.

An elderly man with cataracts who was just beginning to get his sight back failed to look up when the teacher wished to show him something else but kept looking at his hand on his knee. Finally, she questioned him. "Why, I'm having so much fun," he explained, "seeing my hand on my knee, I just don't want to stop." It was the first time since his blindness that he had seen his hand clearly—a real thrill.

A boy of twelve who had developed vision sufficient to find his way safely about his school unattended, said one day, "You don't know what it means to me to be independent and get about the corridors and find my room and my desk by myself." Complete dependence on others is such a hardship. Vision is such a joy!

Even tiny tots thrill with delight when first they see. It was my good fortune to work with a six-months-old baby, blind with cataracts. Finally, one day a surge of circulation through the lens brought out a flash of vision. The baby's eyes came to focus on a shiny Christmas tree ornament. She began to bounce in her mother's arms,

reached out her hands towards the object, smiling and blowing bubbles. "She saw it!" the mother cried, tears streaming down her face. "That's the first time my baby ever reached out her hand for anything!" *

For both old and young, vision is the source of our greatest happiness!

And for those of us who have never experienced more trouble than mere refractive error, think what an enrichment to life and what added happiness our casual daily vision affords: the varying architecture of houses and buildings, the beauty of automobiles, the gay advertisement of billboards and magazines, the subtle lines of costumes and decorations, the richness of gardens and sunsets, the light in the eyes of family and friends—our whole beautiful world of color and motion and shape.

We should guard this vision of ours by using our eyes with relaxation!

* This incident took place as a demonstration lesson before a class of fifty-four student-teachers. Before the baby was taken away, she had experienced a glimpse of the people before her and had caught a flash of her mother's face.

CHAPTER XVI

Summing Up

"It takes, apparently, several years for adequate seeing habits to be formed. Once formed, however, the habit of using the mental and physiological organs of vision correctly becomes automatic—in exactly the same way as does the habit of using the throat, tongue, and palate for talking or the legs for walking." *

—ALDOUS HUXLEY

DID YOU ever watch the honey bee at work? It flits from flower to flower gathering a little nectar here, a little there. It works consistently and tirelessly, gaining a bit at a time to store for future needs. If you, little by little, extract from each day increasing visual relaxation, you will gradually build for yourself permanent visual skill for all future needs. Your mind will be enriched and your personality become more pleasing and magnetic. In every way, life will be more abundant and pleasurable.

In conclusion, vision is the function of the eye: vision at the close point and at all intervening points to the farthest distance within human range. Some eyes are so powerful that they see beyond what is considered humanly possible. I know a sea captain in the tropics with

* From *The Art of Seeing* (Harper & Brothers).

such extraordinary vision that he navigates by Venus in broad daylight. When this captain returned from sea duty, he showed Venus to a group of fifty of us at 10 o'clock on a sunny May morning. It was a beautiful sight, like a tiny shimmering jewel sparkling alone on high, seemingly much closer to us than the sky, which appeared to be pushed far into the background.

Eyes want to see, are greedy for activity, eager for vision. Relax and let your eyes adjust themselves to the distances required by your daily life.

We have tried to show in these pages how relaxation can be attained and maintained as you use your eyes. These principles are more difficult to apply when you work alone, because eyestrain can occur without your knowing when or how, unnoticed until the reaction sets in. Nevertheless, if you follow directions carefully and faithfully, you will succeed.

Your eagerness to give time and thought to the instillation of good visual habits will insure success. You must get your own consent to do the simple drills, then earnestly cling to your resolve to loosen the voluntary muscles daily in the swings, and to loosen the involuntary muscles daily in the mental drills. Keeping a mental poise and relaxation of the thought behind the look is every bit as important as maintaining loosened muscles.

Many think that they do not have time to do the relaxation drills; they just do not want to *take* the time. It requires no more time to look with ease than to look with strain. The way you use your vision today will determine the way it will perform for you tomorrow.

Help Yourself to Better Sight

Card No. 1

Principles of Eye Training

1. Vision can be improved by natural methods.

2. Tension causes eye strain and impairs vision. Relaxation relieves tension.

3. Relaxed eyes are normal eyes. When eyes lose their relaxation and become tense, they strain and stare and the vision becomes poor.

4. Vision can be improved only by education in proper seeing. Proper seeing is relaxed seeing. Normal eyes shift rapidly and continuously. Eyes with defective vision are fixed and staring. When staring eyes learn to shift, vision is improved.

5. The eyeball is like the camera, and changes in focal length. To focus the camera, you must adjust the distance from the negative to the front of the camera.

6. To focus the eye, the distance between the retina at the back and the cornea in front must be increased for close vision and decreased for the distant view.

7. Six muscles on the outside of the eyeball control its shape; four, reaching from front to back, flatten the eye; two, belting it around the middle, squeeze it long from front to back.

8. When the eyes are relaxed, these six muscles are flexible and cooperate automatically, adjusting the focal length so eyes may see both near and far.

9. Just as dependence on crutches weakens leg muscles, so dependence on glasses weakens eye muscles by relieving them of responsibility. But muscles can be reeducated to do their duties.

10. Relaxation of the eyes and mind brings relaxation of the entire body. This general relaxation increases circulation and brings improved physical, visual and mental health.

11. Relaxation is a sensation.

THOU SHALT NOT STRAIN

The eye records images, the mind interprets and sees. When the mind is tense, the eye is tense; when the mind is relaxed, the eye is relaxed. Perfect memory of any object increases mental relaxation. Mental relaxation results in relaxation of the eyes, and both together result in better vision.

1 2 3 4 5 6 7 8 9 10

Help Yourself to Better Sight

Card No. 2

c a i g

m e f t s

t p j x n q

l w r y s u a

e v g p c f d t

k a b e n e m y

b g p l a i q d o

z m o v p e d h s f

THE ART OF READING

When reading, you should look at the white spaces between the lines and not directly at the lines themselves. The reason for this is that it is no effort to sweep the eyes over a plain background. Fixing the eyes on individual words and letters involves strain, and strain impairs vision.

When a person with normal sight regards the white spaces with a sweeping shift across the page from margin to margin, he can read easily, rapidly and without fatigue. If the same person looks at the letters, the eyes grow tired and the vision becomes poor.

People who cannot read well at the near point always tend to fix their attention on the print. Consequently they see worse. Improvement cannot take place until they learn to look at the white spaces between the lines.

Reading can be improved by improving the power to remember or imagine whiteness. This improvement can be achieved in the following way. Close your eyes and imagine something even whiter than the page before you—white snow, white starch, white linen. Then open your eyes again. If your mental images of whiteness have been clear and intense, you will find that the white spaces between the lines will appear for a few moments to be whiter than they really are. Repeat this process as a regular drill. When your imagination of whiteness has become so good that you can constantly see the spaces between lines as whiter than they really are, the print will seem blacker by contrast and the eye will find itself reading easily and without effort or fatigue.

The Thin White Line

When the imagination of whiteness has reached its maximum intensity, it often happens that one can see a thin white line much better than the rest of the white space. This white line may be compared to a neon light moving swiftly from one margin to the other immediately under the letters.

The consciousness of this thin white line is a great help in reading, increasing as it does the speed both of the eyes and of the mind. Once this illusion of the white line is seen, imagined or remembered, unlimited reading without fatigue becomes possible.

—Condensed from an Article by
Wm. H. Bates, M. D.

Help Yourself to Better Sight
Card No. 3

Help Yourself to Better Sight

Card No. 4

THE ART OF READING

When reading, you should look at the white spaces between the lines and not directly at the lines themselves. The reason for this is that it is an effort to crowd the eyes over a plain background. Firing the eyes on individual words and letters involves strain, and strain implies vision.

When a person with normal sight regards the white spaces with a sweeping shift across the page from margin to margin, he can read easily, rapidly and without fatigue. If the same person looks at the letters, the eyes grow tired and the vision becomes poor.

People who cannot read well at the near point always tend to fix their attention on the print. Consequently they are weary. Improvement cannot take place until they learn to look at the white spaces between the lines.

Reading can be improved by improving the power to remember or imagine whiteness. This improvement can be achieved in the following way: Close your eyes and imagine something even whiter than the page before you—white snow, white clouds, white linen. Then open your eyes again. If your mental images of whiteness have been clear and intense, you will find that the white spaces between the lines will appear for a few moments to be whiter than they really are. Repeat this process as a regular drill. When your imagination of whiteness has become so good that you can constantly see the spaces between lines as whiter than they really are, the print will seem kinder by contrast and the eyes will find their reading easier and without effort or fatigue.

The Thin White Line

When the imagination of whiteness has reached its maximum intensity, it often happens that one can see a thin white line much better than the rest of the white space. This white line may be compared to a very light moving steadily from one margin to the other immediately under the letters.

The consciousness of this thin white line is a great help to reading, increasing as it does the speed both of the eyes and of the mind. Once this stimulus of the white line is gone, improved or remembered, sustained reading without fatigue becomes possible.

Continued from an Article by
Wm. H. Bates, M. D.

Help Yourself to Better Sight

Card No. 5

l o o k

l o o k

l o o k

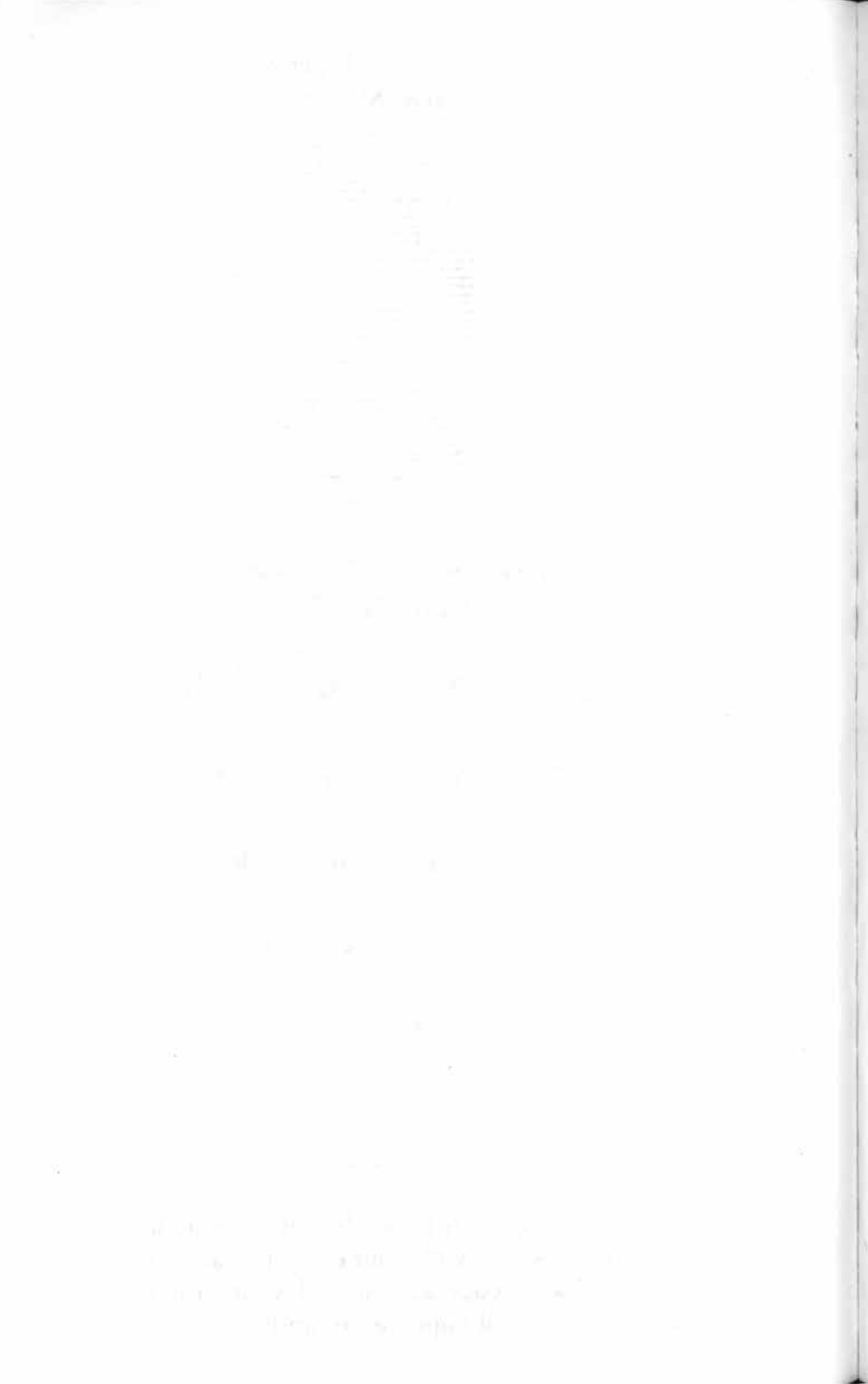
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When you can remember or imagine a thing as well with your eyes open as you can with your eyes closed your vision will improve promptly.



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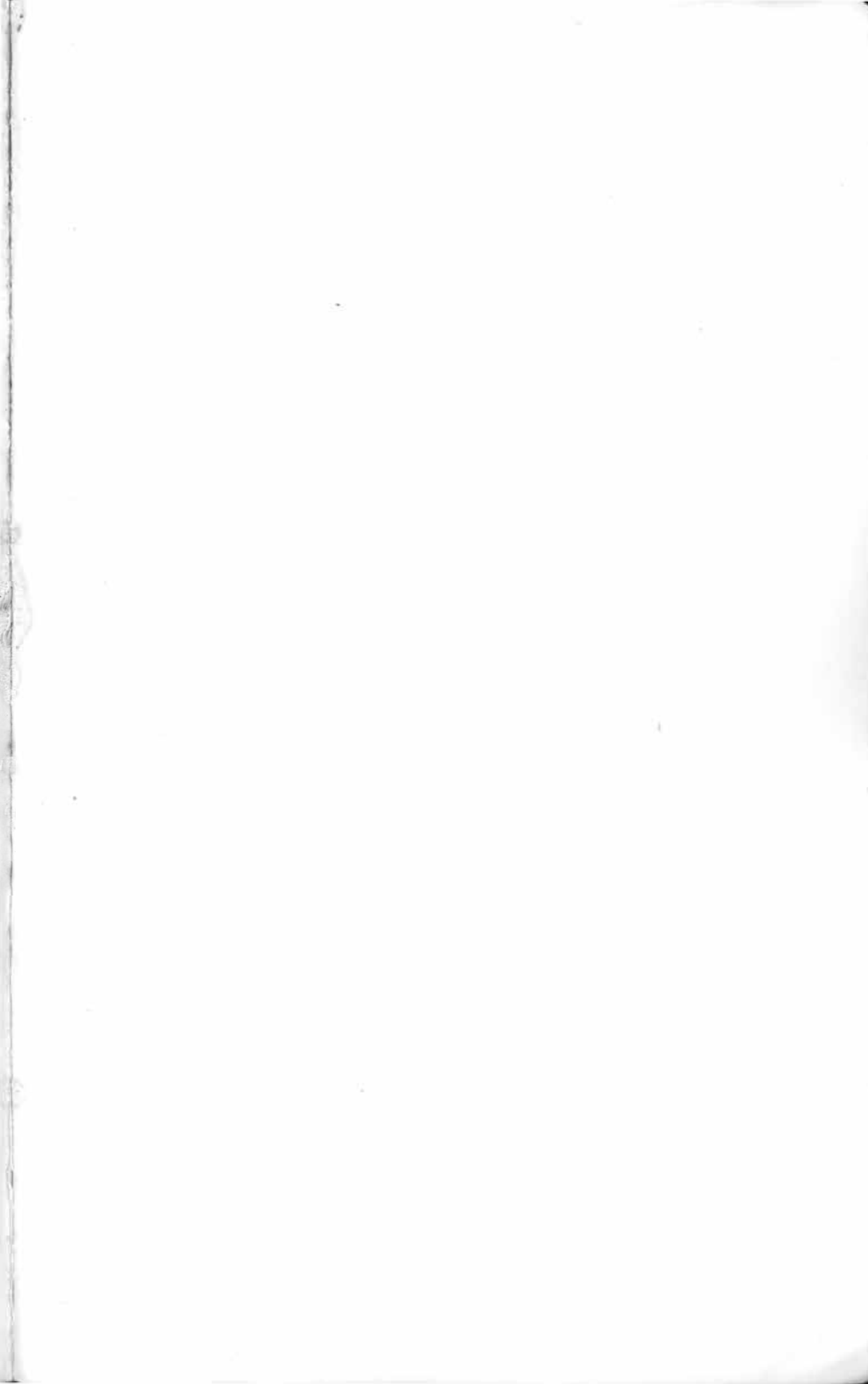
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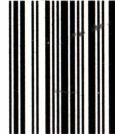
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